PAGE 6 PUBLISHING's

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October/November

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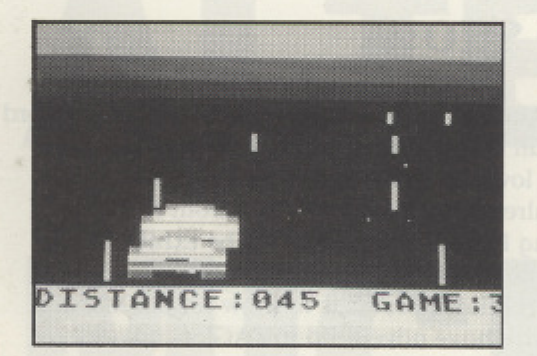
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'The magazine for the Dedicated Atari User'

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Issue 40 October/November 1989

ST FILE



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Fast type-in fun

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SUBMISSIONS

PAGE 6 welcomes and encourages its readers to submit, articles, programs and reviews for publication. Programs must be submitted on disk or cassette, articles should wherever possible be submitted as text files on disk. We seek to encourage your participation and do not have strict rules for submissions. If something interests you, write a program or article and submit it! Appropriate payment will be made for all published programs and articles.

The next issue of NEW ATARI USER will be on sale 23rd November
Editorial copy date is 16th October

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PAGE 6 PUBLISHING's

NEW ATARI USER

Issue 40
October/November 1989
'The Magazine for the Dedicated Atari User'

ISSN No. 0952-4967

THE CREDITS

All of the usual stuff is on page 3 but here are the people who made this issue possible.

Les Ellingham did the editing, layout etc.

Sandy looked after the advertising

John R. Barnsley helped out, especially with the Contact Column (now you know who to blame if the phone numbers are wrong!) and in lots of other ways

Jane joined us recently and is getting settled in, more next issue!

Stacey didn't help at all!

The Regular Contributors, who provide the backbone of the magazine and can generally be relied upon to come up with good articles and reviews, are ....

Mark Hutchinson **Matthew Jones**
John Davison **John Davison jr**
John Sweeney **Paul Rixon**
Damon Howarth **Garry Francis**

All other contributors for this issue are individually credited alongside their articles or programs. Thanks to everybody for sharing their work and enthusiasm with other Atari users.

We got a letter with Australian stamps on it! Inside it said 'Sorry' and 'I will be back ... and that's a promise!'. Great stuff!

The cover picture shows an F-16 Jet Fighter and is by Gabe Palmer from the Zefa Picture Library, we would have taken our own cover photo but didn't have room for the plane in the back garden!

Inspiration this time came from The Palm Wine Guitar of S.E. Rogie, Peter Gabriel's Passion which is rather strange but ideal for composing computer magazines by! Christy Moore came in with a late, and somewhat subdued, entry that is slowly growing and Vangelis, after quite a time, with some masterful themes. Lots of other folks as well as mentioned in previous issues. No one at the Cambridge Folk Festival said 'You are the editor of NEW ATARI USER and I claim my free CD'!

NEW ATARI USER is the magazine, PAGE 6 is the concept. Wherever you see PAGE 6 you'll know what it means!

The next issue of NEW ATARI USER could feature YOUR article or program, so SEND IT IN NOW!

PAGE 6 shows just what you can do with your Atari. With the exception of final output on a Linotron and use of a repro camera for the listings and photos, the magazine is prepared entirely with Atari based equipment and software - not a Macintosh or IBM in sight! Hardware used includes 130XE, 1050 disk drive, 810 disk drive, 410 cassette (occasionally!), 850 Interface, NEC 8023 printer, 1040ST, SM124 Monitor, Atari SH204 hard disk drive, Cumana 1 meg disk drive, Epson RX100 printer, Kyocera laser printer, Microstuffer printer buffer. Software includes Superscript, Turbo Basic, Kermit, PC Intercomm, TARI-TALK, Print Wiz, PC Intercomm, STWriter, Protext and Fleet Street Publisher. Articles and programs submitted on XL/XE disks are subjected to various custom written programs before being transferred across to the ST via TARI-TALK. All major editing is done with Protext and pages are laid out with Fleet Street Publisher. A disk with the finished pages is sent up to The Setting Studio in Newcastle (a typesetting bureau who really know what they are doing with the ST) to be output on a Linotron 300 and, hey presto, finished pages are sent back. It really does work - at last! All that is left is to drop in the listings and photos. Well, it's not quite as easy as that, but you get the idea!

Editorial

ALTERNATIVE MICRO SHOW

Saturday November 11th sees the one day Alternative Micro Show being held in Stafford and you will find an advertisement giving full details elsewhere in this issue. For most people, Stafford is a long way to travel for a low-key Show that supports Atari only as one of a number of machines but we have already had a lot of letters from readers saying they will attend. At the time of writing I am not sure who will be exhibiting but the costs for exhibitors are very low and it will certainly be a worthwhile event for any company, user group or individual with Atari related products to show or sell. Many of the long time supporters of the 8-bit Atari, who have advertised in PAGE 6, have never attended the major shows because of the costs involved but the Alternative Micro Show is so inexpensive to attend that nobody has an excuse not to exhibit!

If you have any product for the Atari 8-bit to sell or exhibit, or if you are a User Group please give me a ring so that I can explain the benefits of attending. I believe it is important for the long term survival of the 8-bit Atari that we must all support this type of event and I look forward to seeing as many Atari people, both exhibiting and visiting, as possible. Let's show everyone them that Atari is still the best!

LISTINGS

We have had a few letters recently complaining about the number of machine code games that we have featured in recent issues. Not about the quality, which has been first class, but that typing in a machine code program full of meaningless data statements does not teach the user anything about programming. The point is well taken so this issue we have included one or two much simpler listings in Basic that will hopefully be of more interest to those who want to learn how to program. These type of listings are not as sophisticated as the machine language games but do give the opportunity to the reader of adding his or her own amendments and improvements. Striking a balance is difficult and we will continue to publish machine code listings because the results of all that typing are always well worth while but if you feel that you would like other types of program, please feel free to drop us a line and let us know your preferences.

THE PRICE GOES UP

I am sorry to have to advise that the cover price of the magazine has to go up from next issue to £1.75. During the past year there have been three increases in the costs of printing and producing the magazine all of which we have absorbed but we must now look ahead to ensure that we can continue to bring you a quality magazine. Because we cover the Atari 8-bit machines we are somewhat of a 'specialised' magazine and if you look around on your newsagent's shelves you will find a number of specialist magazines with a much higher cover price and a lot less pages. We have to take into account also that advertising revenue on the 8-bit side is not going to grow, quite the reverse, and with so many magazines covering the ST from the big publishers whose advertising people are trained to sell sand to Arabs we don't get much of a look in with the glossy ST ads.

Nobody likes a price increase but we all have to be realistic. I hope that you stick with us, we need each other! For the time being the subscription prices will be held at current levels so that you can save yourself some money by subscribing. Subscribing, however, does much more than save a few pennies, it shows your commitment and interest and helps us to continue to provide what is now the only support for the XL/XE machines and offer a magazine that gives ST owners a different viewpoint from the 'formula' magazines. Please think about subscribing now.

COMPUTERWARE

We had a lot of complaints about Computerware from Stoke-on-Trent who advertised in Issue 37 and we are still receiving complaints from readers who have not received goods. Computerware had been running advertisement in Atari User for some time before we bought that magazine and the advertisements was accepted in good faith. I spoke to the proprietor, Mr J.W. Fenton, some time ago who explained that he had had some problems in obtaining stock and he promised to write to all customers with outstanding orders to explain the delay. This may well have been done but we are still receiving complaints. Unfortunately Mr Fenton has changed his telephone number to ex-directory so we cannot now contact him to check the situation. If any readers have orders outstanding from this company would they please write to us giving full details so that we may have the full picture and can decide whether any action needs to be taken with the appropriate authorities. ◁

THE THIRD

ALTERNATIVE MICROSHOW

AND ELECTRONICS FAIR

SATURDAY NOVEMBER 11th
10 am to 5 pm

BINGLEY HALL, STAFFORDSHIRE SHOW CENTRE

ADMISSION: ADULTS - £2.00 CHILDREN - £1.00

COME AND SEE THE FOLKS FROM PAGE 6, NEW ATARI USER, B.U.G., CITY BBS, BOURNEMOUTH AND POOLE USER GROUP, MILES BETTER SOFTWARE, CALLISTO COMPUTERS AND OTHERS TO BE CONFIRMED AT THE SHOW THAT REALLY SUPPORTS THE 8 BIT ATARI

IF YOU ARE AN ATARI 8-BIT OWNER THEN THERE IS ONLY ONE PLACE TO BE ON SATURDAY NOVEMBER 11th - THE BINGLEY HALL, STAFFORD. THIS SHOW PROMISES TO BE EVEN BIGGER AND BETTER THAN THE LONDON ALTERNATIVE MICRO SHOW

THE ALTERNATIVE MICRO SHOW IS *THE* SHOW TO FIND SUPPORTERS OF THE ATARI 8 BIT WITH THE CHANCE TO STOP AND CHAT AND THE OPPORTUNITY TO PICK UP SOME HARD TO FIND SOFTWARE AND HARDWARE

Other machines represented at the Show will include - Tatung, Einstein, BBC, MSX, Memotech, Dragon, ZX88, Lynx, Jupiter Ace, Enterprise, Oric, Spectrum, QL, Commodore 8-bit, Texas TI99/4A, Adam etc.

FOR THE FIRST TIME THIS SHOW WILL ALSO INCLUDE AN ELECTRONICS FAIR WITH AMATEUR RADIO DEMONSTRATIONS

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ALL THOSE OBTAINING ADVANCE TICKETS WILL BE ELIGIBLE FOR A FREE DRAW THE PRIZE TO BE PRESENTED AT THE SHOW IS AN OKI 293 COLOUR PRINTER

BEAT IT!

From next issue we have to put up the price of NEW ATARI USER to £1.75 but you can beat the increase by subscribing NOW! If you subscribe using the form on this page you can have SIX issues of your favourite Atari magazine at the old subscription price of £9* - and that's equivalent to getting ONE FREE ISSUE over the coming year!

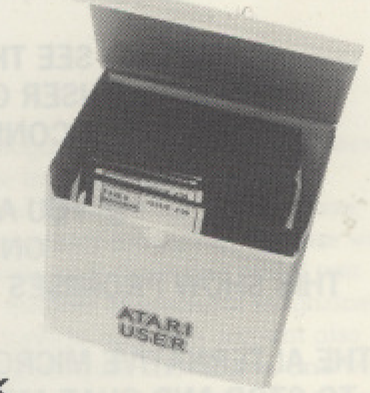
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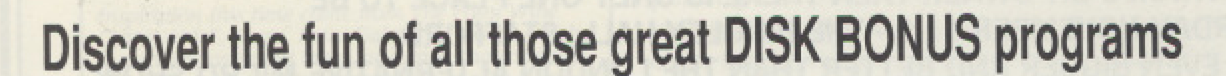
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A Disk Subscription costs just £24* and that represents a saving of OVER £4 against buying the magazine and disk separately! Add the cost of the disk box and you are SAVING OVER £9! It makes sense.





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newscene

ATARI CONTINUES TO SUPPORT THE XE

The British Grand Prix at Silverstone was the venue chosen by Atari to launch their new Atarisoft software label which will provide software not only for Atari computers but IBM, Commodore and others as well.

An invite to The British Grand Prix was not something to turn down so your Editor dutifully trotted off at about six in the morning to watch as much of the Formula 1 practice as possible before finding the Atari hospitality tent. Atari had hired two hospitality suites one of which was set out for lunch and the other set up as a sort of games arcade with all the planned releases on show and a couple of mock racing cars controlling the new Atari Grand Prix game. Of course software for the ST was expected but would there be anything for the XL/XE? Indeed there was, a good selection of games that have just been released or are due to be released by the end of the year. The titles were announced in the last issue of NEW ATARI USER and several are reviewed in this issue.

So what of Atari's commitment to the XL/XE? I asked Bob Katz, Atari's software development manager, whether the idea of producing software for other machines was simply to make it easier to support their own machines. He replied "Very much so, take the XL/XE for example, in today's market it would not be viable to set up a label producing only 8 bit titles but by covering other machines as well we can ensure that we can support the 8 bit as much as possible". One other interesting point is that many of the programmers of the latest 8 bit games were also invited along for the free lunch and hospitality, a sign that Atari still take the 8 bit machines seriously.

I would like to tell you more, but the incredible noise of Formula 1engines was roaring outside and the qualifying laps for pole position were about to begin. I can tell you that no computer game, not even Atari's Pole Position can match up to the excitement of the real thing so I just had to dash off!

Overall a great day and nice to know that Atari are still supporting the 8 bit machines. Look out for the Atarisoft titles **NUCLEUS**, **BLACK LAMP**, **CYGNUS X1**, **TIGER ATTACK**, **SPEEDHAWK**, **HEARTACHE** and **SLING SHOT** in your local shops, and buy them to prove to Atari that the demand for 8 bit software is still there. If you want them, they will provide more! Many of the titles on show for the ST are lined up for conversion to the XL/XE.

PRINTER USER GROUP

User Groups for computers are relatively common but how about a User Group that concentrates solely on printers? That is the idea of Nick Godwin up in Scotland who wants to get together with other printer owners to set up a national user group whose members could exchange information, swap items, contribute to a newsletter and all the usual things that user groups get up to. He also envisages an advice hotline and 'skills exchange'.

Sounds like a good idea, as few printer owners actually use their printers to the full extent. How many of you understand how to vertically and horizontally tabulate on your printer or design downloadable fonts? What about graphics? Have you ever programmed your printer? If you feel that the user group idea might appeal to you drop Nick a line, enclosing a stamped addressed A4 envelope and he will send you more details. Write to Nick Godwin, WRITE-ON-LINE, 4, Hurkur Crescent, Eyemouth, Berwickshire, TD14 5AP.

MORE BUDGET RELEASES

There are a reasonable amount of budget re-releases coming your way for the XL/XE at the moment. Zeppelin Games have secured the budget rights to the Tynesoft catalogue and are also releasing some of Domark's titles. There are some excellent games being released on cassette at £2.99 which include **MIRAX FORCE**, a superb scrolling game from Tynesoft which includes sampled speech, **SIDEWINDER** which has been around for a while but still remains extremely playable, **SOCCER MANAGER** and **THE LIVING DAYLIGHTS** which was a relatively new full price release from Domark.

Alternative Software have also been busy securing budget rights and will be releasing the Mirrorsoft back catalogue which includes a couple of excellent flight simulators, **SPITFIRE 40** and **STRIKE FORCE HARRIER** both at £2.99. If you have never tried a flight simulator, you now have no excuse! At the lower price of £1.99 are a couple of arcade games, **TRAILBLAZER** and **WHO DARES WINS 2**.

Not a bad lot for XL/XE owners. With Atari's new releases reviewed in this issue there should be a reasonable amount of new software around at the present time for you to try.

SPARES ... SPARES ... SPARES

Judging by the number of enquiries we receive there are a lot of XL/XE owners out there who can't find any support when it comes to finding spares when small problems crop up with their systems. We have many letters, for instance, from readers who have been advised that they must buy a new cassette recorder simply because the Play button is broken!

Someone who might well be able to help is Derek Fern who runs an Atari 8 Bit Spares and Information service which began life as an offshoot from the Birmingham User Group. The latest broadsheet issued is packed full of hard to get items such as replacement keyboards for the 130XE, power packs, various chips for computers and drives, motors for the 1050 disk drive, replacement buttons for the 1010 and XC12 cassette recorders and lots more besides. And that's not all, there are also some excellent bargains such as 800XLs at £25 apiece and green screen monitors for £32 plus DIY project kits for memory upgrades and interfaces.

Supplies of many items are limited so most items are on a first come basis. If you are interested we suggest you give Derek a ring on 021 353 5730 to see what goodies he might have on offer.

ANOTHER ATARI SPECIALIST

B.Bytes Computer Systems of Hinckley are apparently ditching most of the other brands of computer to concentrate entirely on Atari and that doesn't just include the ST, they fully intend to support the 8 bit machines as well. That's good news for all Atari owners.

MAILBAG

write to Mailbag P.O. Box 54, Stafford ST16 1DR ENGLAND

DO IT YOURSELF

I read with interest and dismay the preview of HAWKQUEST and agree it would be a great shame if software of this quality was not to reach the 8 bit masses. The article finished with the idea that we should write to companies asking them to publish it. My idea is that perhaps PAGE 6 should consider publishing it through their Accessory Shop though not as public domain. If it was successful, than maybe other software titles could be released this way?

Simon Bodger, Chichester

We would love to publish games of this quality but sometimes a program is too good for us! Being realistic, we have to face the fact that NEW ATARI USER and the Accessory Shop doesn't reach all Atari owners (more fool them!) and that an established software company with access to the correct distribution channels could sell many more copies than we could, or at least they should be able to. In the case of programs like HAWKQUEST we would rather that the program was as widely available as possible so that the authors could enjoy greater success. We understand that Red Rat have expressed an interest in publishing HAWKQUEST and will let you know whether it is due for release. Even though we will not be selling the game ourselves, we have hopefully been instrumental in its release.

STRETCHING THE LIMITS

I am a dedicated Atari fanatic who has owned an Atari for many years and a very competent machine code programmer but one of the features that has always alluded me is how to obtain more than four colours on a horizontal line in Antic 14 without using rasters, DLI's or horizontal kernals. I believe it can be done because Antic mode 4 can display five colours (four playfield and the fifth is obtained by setting bit 7 in the character number - this corresponds to register 711 being used). Since Antic mode 4 is equivalent in terms of colours and pixel combinations to Antic mode 14, it should be possible to get that fifth colour, but how?

There are games around that have used this fifth colour, for example World Karate Championship. This had six colours on one horizontal line - brown background, red for player one's uniform, white for player two's uniform, pink for their faces, black outline colour and yellow for the high score table. One of these colours was probably due to hardware sprites but only one colour since to get the necessary definition all sprites would have to be the same colour, but it still leaves the sixth colour unexplained. Can anybody help? If anyone can solve this I will give them a copy of my brand new game Joe Blade II.

SOLVING SOME OF THE XF551 PR

There seems to be general dissatisfaction with the XF551 disk drive amongst your readership. I have only ever owned this model drive and I must admit at first it did seem inferior to the 1050 drive, not being able to write to the back of the disk, although the drive itself is much quieter and quicker than the old model. As far as not being all that it is claimed to be though, it definitely works well as a double sided, double density drive with the right DOS. There are three readily available: DOS 4 available from several sources, try Starfleet Software, 1037 West Leafland Avenue, Decatur, Illinois 62552-1537, U.S.A. price $10 plus $3 postage - ATARI DOS XE available from Atari Corp. 1196 Borregas Avenue, Sunnyvale, California 94086, U.S.A. price $10 and SPARTADOS v3.2 or X available in the UK from Frontier Software.

Of all the above Spartados-X seems to be the best but at a cost. It comes in cartridge form so no disk space is used for DOS files. The major drawback with any of the above is that none are compatible with DOS 2 or 2.5 and only Spartados will convert existing DOS 2/2.5 files to its new format (but it does work and is fairly easy to use).

For those who wish to stick to DOS 2/2.5 there is however one other solution. COMPUTER SOFTWARE SERVICES, P.O. Box 17660, ROCHESTER, NEW YORK 14617, U.S.A. have a device for sale called an XF551 ENHANCER ($29.95 + p&p - they accept VISA). When fitted to the XF551 drive this device allows the drive to write to both sides of the disk in the 'normal' fashion i.e. by 'flipping' the disk. Sounds great and it works well but there is a catch! The XF551 obtains its timing pulse from the timing hole on the disk, consequently when the disk is flipped, the sensor cannot pick up the hole. To overcome this problem the XF551 ENHANCER derives its timing pulse from the mains supply,as did the 1050 drive. The problem with this solution is of course that the Americans use a 60Hz mains supply so the ENHANCER needs a small modification to make it compatible with a 'normal' 50 Hz system as you have in Britain. This is a simple 60Hz pulse generator and if anyone is interested in carrying out this modification then please contact me at 18, PRINCESS STREET, SANNEVIRKE, NEW ZEALAND and I will gladly supply the details. The end result is an XF551 drive that behaves like a quieter, quicker 1050.

My second topic is the ATARI XMM801 printer. Are there many out there who, in wanting to use their Atari 8 bit for more than just playing games, purchased the, supposedly, 'Epson-compatible' XMM801 only to find that it wouldn't work with any of the great software packages such as Printshop and Daisy Dot II? Well, with a little cash outlay it will! The first product you need is

P.S. The game is great - great graphics, superb animation of Joe and the Punks. My verdict is to go out and buy it straight away!

Barry Southam
Author of Joe Blade

Nothing like a bit of modesty is there! We have published solutions to 'impossible' programming tasks before so can anyone tackle this one? Sounds like a job for Paul Lay to me!

GOOD SUPPORT

Having read G.D. Wood's letter in Issue 38 concerning dealers who have given good support, and your reply, I feel inclined to add my voice.

Earlier this year I wanted to upgrade to a more comprehensive word processor. I contacted all of the 'big' names who offer serious software and usually claim that they will obtain any software to the extent of importing it if necessary. I asked for PaperClip, Superscript and the 1st Xlent Word Processor, all of which have been reviewed favourable in the not too distant past. In each case they could not offer the software, nor offer any alternative except Atariwriter and were not willing to try and obtain a copy of any of them.

Through your Resource File I contacted Livingston Computer Centre who did not have a copy in stock, however they continued to try and locate a copy of PaperClip, keeping me informed. After three or four weeks another customer offered them a second hand copy and they were sufficiently interested to remember my enquiry and contacted me with an offer. Through their good service I now have a copy of Paperclip.

One point from this episode is where has all the serious software gone? Even programs that have been widely available here or in the U.S. seem to be unobtainable, much less there being any hope of future releases. Not all of us have sufficient demand to dump our 8 bit setups and invest in an ST.

Finally in response to your editorial, I was one of those who went to the London Alternative Micro Show and, yes, I would support similar initiatives, such as you outline, again. I found it more appealing than the major shows where you are forever jostled and struggling to get near to stands of interest.

M. Lambert,
Maidenhead

Does anyone know of a retailer that still has good serious 8 bit programs available? Write and tell us. The only 'new' serious programs seem to be the 'Turbo' programs imported by Computerhouse. Read on ...

TOP CLASS

I have an XEP80 which I use in particular with Turbobase80 and Turboword, and must say that with these two programs you have everything you need to run a small business. The Turbobase is an excellent package, it makes accounting very easy, producing statements as often as one wants! Also it is very good for VAT etc. It must be the equivalent of £1000's worth of IBM software!

Turboword is the best word processor I have ever used on the 8 bit Atari. You can see exactly where you are on the page, very handy when writing long documents. It also automatically puts your own address at the top of a letter if you want it to. For the first time I actually feel like sitting down and writing some letters!

I hope that many Atari users will support Micromiser via Computerhouse with this software.

J.D. Bouch,
Wolverhampton

WHY I DIDN'T GO

You asked for some feedback why fewer people turned up to the Atari Show at the end of June, so I felt obliged to give my excuse. The reason why I failed to turn up was because PAGE 6 ATARI USER managed to dissuade me. A trip to London is difficult enough but to be told that the show was almost entirely ST orientated put the nail in the coffin. Perhaps if PAGE 6 had concentrated on the Show's 8 bit good points then I might have gone.

NEW ATARI USER remains a brilliant magazine but would it be possible to print photos of all the PAGE 6 gang and contributors. So far I've seen John Sweeney, Mark Hutchinson and (I think) the late, great Garry Francis (is he still in Sydney?) both accepting the Page 6 Contributors Award, whatever happened to that?

If you print this letter I'd like to say 'hello' to Keith S, in Preston.

P. Doughty
Sleaford, Lincs

Sorry if we put you off going to the Show but you should know by now that Page 6 doesn't believe in all this hype business, we would rather you get the true picture even if it is at times negative. To try and get folks along to the Show by emphasising a very small part out of proportion would be wrong. Another problem is that it is not until you get to a Show that you find out just what is there and, although only a small part of the Show, there was 8 bit support and a lot of bargains to be had if you hunted them out. Why not come along to the Alternative Micro Show? There will be Atari 8 bit support there but, again, only as part of a larger show. The trouble is if you don't go the Atari exhibitors will decide it's not worthwhile and the Atari support will die. The future of 8 bit support lies firmly with the users, you should try and show your support whenever the opportunity arises.

As to the photos, how come you have seen a photo of Garry Francis, since I've never even seen one? And who gave him an award without us knowing about it? The chap you are thinking about is actually Paul Lay. We've often thought about including photos of the contributors but most of them are incredible shy. Still if there are any egos amongst the contributors and we get any photos in plain brown envelopes, we'll put them in a future issue (Rogue's Gallery?)

BACK ISSUES

I am writing as an old Atari User fan who was a bit cautious at first of buying your superb magazine. Unfortunately as I have missed issues 34 to 37 I have great trouble in understanding some of your articles. Why don't you offer a back issue service like Atari User used to do?

Matthew Preston
Winslow, Bucks

But we do! Somewhere in this issue you will find full details of the back issues available and how to get them. You probably read the issue in which we left out the back issues page in order to squeeze in another article. It wouldn't all fit in so rather than cut an article we dropped both the Back Issues page and Resource File.



'1 PROBLEMS

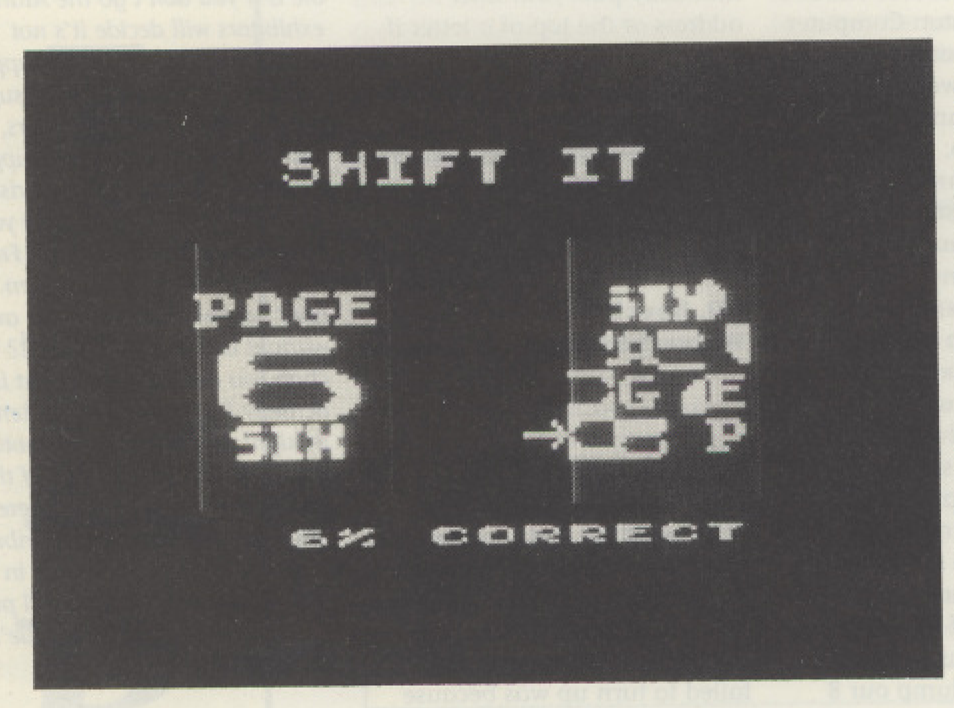
the XMM801 TRANSLATOR DISK from XLENT SOFTWARE, P.O. Box 5228, SPRINGFIELD, VIRGINIA 22150, U.S.A. (cost $10 + p&p - they take VISA). this disk allows you to run Printshop or create a boot disk to run other software. Printshop works well although it seems necessary to 'baby sit' the printer as it has a habit of going off line intermittently. The printout has the odd hiccup but the successful print rate is about 95%, a lot better than not being able to use Printshop at all!

I hope the above information is of some use to readers. The XF551 and XMM801 like the Atari 8 bit computers are great products and there are still some people out there supporting them, although the support level in New Zealand seems to be zero.

R.W. Anderson,
NEW ZEALAND

SHIFT IT

A MIND BOGGLING PUZZLE BY R. C. GOODFELLOW



Many moons ago a Professor Rubik unleashed onto an unsuspecting world that bugbear of man, the Rubiks Cube, and so man's mind turned to jelly trying to figure it out.

Now, for Atari owners, there is Shift It, a two dimensional sliding squares Rubiks style cube, that will once again send you running for the nearest brain care specialist, (Gag Halfrunt if available?). Not the most descriptive of descriptions but when you play it you'll get the idea. As (badly) stated it is cross between a sliding squares puzzle and the 'cube', but in two dimensions. There is a wrap-round effect, so that if you move the first column up, the top square becomes the bottom square.

Confused? Not surprising. Put simply if you like a puzzle then you'll probably enjoy Shift It.

TYPING IT IN

Just type in Listing 1 and save it to disk or cassette. TYPO 3 will help with all those control codes from line 10000 onwards but if the thought of all those control characters horrifies you can skip these and type in Listing 2 instead.

If you want to take the easy way you still need to type in Listing 1 but stop when you come to line 10000. Now SAVE or CSAVE the listing so far to disk or cassette, type NEW and then type in Listing 2. Listing 2, when complete should also be SAVEd or CSAVEd for safety's sake. Now get a spare tape or disk ready and RUN Listing 2. This will create a listed version of lines 10000 onwards on disk or tape.

Next stage is to LOAD or CLOAD Listing 1 and then ENTER Listing 2. With Listing 1 loaded, just type ENTER "D:STRINGS.LST" or ENTER "C:" and the two programs will merge. Now SAVE or CSAVE a copy of the merged program. Once the final combined program has been saved the two original listings and the 'strings' listing are no longer required and may be deleted.

PLAYING SHIFT IT

When you type RUN there will be a very short delay and the title screen will be displayed. At the bottom you will see the picture you will be trying to solve, (once it has been shuffled!). If you do not like it press the space bar and it will change to another one. There are four puzzles and three levels of difficulty of picture. The puzzles and their 'relative' difficulty are as follows, 1 is the easiest

Letters A - P	Level 1
Numbers 1 - 16	Level 1
The Fuji symbol	Level 2
Page 6	Level 3

Page 6 is the hardest because it has the most 'fiddly bits' in it and it also has a space just to make things more awkward.

You can set the number of shuffles your chosen puzzle will receive by pressing a key from 1 to 9. Pressing 1 will only shuffle the puzzle 5 times, while 9 will shuffle it 45 times. These are random shuffles and so can leave it in pretty much the same condition as when it started, though 45 shuffles should deal with flukes like that.

When you have chosen your puzzle and the difficulty level, press the START key or press the joystick button and you will be transported to the actual game screen, and the shuffles will begin. On the left hand side of the screen is what the finished puzzle should look like and the one on the right is the puzzle you have to solve. On the screen will be an arrow, this is your cursor. Moving the joystick will make the cursor move. The control of this can be a little tricky at first but it will soon become natural. To 'slide' a row or column along move the cursor into position with the arrow pointing in the direction of the 'slide' and press fire, the squares will then move in that direction one place. You just continue this sliding until it's finished. From now on it's up to you.

If you find the puzzle too difficult to complete and you want to try a different one, press the ESCape key and you will be dumped back at the title screen.

I hope that you find SHIFT IT to be an enjoyable challenge and that it does not destroy your brain too quickly! If any enterprising person can retain his sanity and add a subroutine to solve the puzzle when you get stuck instead of the drastic 'I quit' solution please send me a copy as I would be most interested to amend the program.

SHIFT IT Listing 1

```
EI 1 REM ********************************
RP 2 REM *          SHIFT IT            *
RQ 3 REM *             by               *
XX 4 REM *       R.C. Goodfellow        *
YZ 5 REM *      c Utilisoft 1989        *
ED 6 REM * ---------------------------- *
NK 7 REM * NEW ATARI USER - October 89 *
EP 8 REM ********************************
NO 9 REM
XL 80 REM .──────────────────────
GB 90 REM . RESERVE CHARACTER SPACE
ZU 100 REM ──────────────────────
SC 110 GOSUB 10000
KF 120 REM  DISPLAY LIST INTERRUPTS
EI 130 RESTORE 140:FOR T=1 TO 69:READ D:P
   OKE 1535+T,D:NEXT T
KC 140 DATA 72,169,000,141,10,212,141,9,2
   12,104,64,72,165,204,141,10,212,141,9,
   212
CK 150 DATA 169,255,141,13,208,141,14,208
   ,169,40,141,0,2,169,6,141,1,2,104,64
HM 160 DATA 72,165,205,141,10,212,141,9,2
   12,169,0,141,13,208,141,14,208,169,11,
   141
ZZ 170 DATA 0,2,169,6,141,1,2,104,64
VQ 180 MEM1=PEEK(106)-12:POKE 106,MEM1:GR
   APHICS 0
UT 190 CH1HI=INT(MEM1/256):CH1LO=MEM1-256
   *CH1HI
WS 200 MEM2=PEEK(106)-12:POKE 106,MEM2:GR
   APHICS 0
LR 210 CH2HI=INT(MEM2/256):CH2LO=MEM2-256
   *CH2HI:POKE 1538,MEM2
BS 220 U=USR(ADR(ATOI$),ADR(UC$),(MEM1*25
   6),2)
DD 230 U=USR(ADR(ATOI$),ADR(UC$),(MEM2*25
   6),2)
LR 240 REM ──────────────────
QA 250 REM  INITIALISE VARIABLES
LV 260 REM ──────────────────
DC 270 DIM A$(16),CHECK$(16),T1$(4),T2$(4
   ),T$(1),P$(3),CX(16),CY(16)
MT 280 RESTORE 290:FOR T=1 TO 16:READ A,B
   :CX(T)=A-1:CY(T)=B+1:NEXT T
DI 290 DATA 11,5,11,4,11,3,11,2,12,1,13,1
   ,14,1,15,1,16,2,16,3,16,4,16,5,15,6,14
   ,6,13,6,12,6
ZZ 300 GRAPHICS 2:POKE 53248,0:POKE 53249
   ,0:GOSUB 1830
UK 310 IF STRIG(0)=0 THEN 310
BD 320 CP=1
SY 330 GOSUB 1500
OJ 340 FOR Q=1 TO DIFF*5
FX 350 W=INT(RND(1)*4)+1:ROW=INT(RND(0)*3
   ):COL=INT(RND(0)*4)+1
JR 360 IF W=1 THEN GOSUB 480
EN 370 IF W=2 THEN GOSUB 600
NH 380 IF W=3 THEN GOSUB 690
IG 390 IF W=4 THEN GOSUB 540
LA 400 GOSUB 1720:GOSUB 2110:GOSUB 1050
ZP 410 POSITION 2,10:? #6;"shuffles left
   ";(DIFF*5)-Q;" "
JA 420 NEXT Q
EH 430 POSITION 2,10:? #6;"
         "
RU 440 GOTO 790
DL 450 REM ──────────
UF 460 REM  MOVE LEFT
DP 470 REM ──────────
NE 480 T1$=A$(ROW*4+1,ROW*4+1)
YW 490 A$(ROW*4+1,ROW*4+3)=A$(ROW*4+2,ROW
   *4+4)
KJ 500 A$(ROW*4+4,ROW*4+4)=T1$:RETURN
RA 510 REM ───────────
XH 520 REM  MOVE RIGHT
RE 530 REM ───────────
RZ 540 T1$=A$(ROW*4+4,ROW*4+4)
PF 550 T2$=A$(ROW*4+1,ROW*4+3)
TP 560 A$(ROW*4+2,ROW*4+4)=T2$:A$(ROW*4+1
   ,ROW*4+1)=T1$:RETURN
EA 570 REM ────────
DV 580 REM  MOVE UP
EE 590 REM ────────
VO 600 T1$=A$(COL,COL)
QJ 610 FOR T=1 TO 3
HM 620 T2$=A$(COL+T*4,COL+T*4)
DY 630 A$(COL+(T-1)*4,COL+(T-1)*4)=T2$
KK 640 NEXT T
XU 650 A$(COL+12,COL+12)=T1$:RETURN
DP 660 REM ──────────
CW 670 REM  MOVE DOWN
DT 680 REM ──────────
QA 690 T1$=A$(COL+12,COL+12)
VN 700 FOR T=3 TO 1 STEP -1
PJ 710 T2$=A$(COL+(T-1)*4,COL+(T-1)*4)
ET 720 A$(COL+T*4,COL+T*4)=T2$
KJ 730 NEXT T
AN 740 A$(COL,COL)=T1$:RETURN
CO 750 POSITION CX(1),CY(1):? #6;"S":RETU
   RN
DQ 760 REM ──────────────────────
IV 770 REM  READ JOYSTICK AND MOVE
DU 780 REM ──────────────────────
BE 790 ST=STICK(0):TR=STRIG(0):IF QZ=0 TH
   EN GOSUB 750:QZ=1:GOTO 830
AD 800 IF PEEK(764)=28 THEN GOTO 300
UZ 810 IF ST=15 THEN 910
JC 820 POSITION CX(CP),CY(CP):? #6;" ":GO
   SUB 2130
JK 830 POKE 77,0
KT 840 IF ST=13 OR ST=11 THEN CP=CP+1:IF
   CP>16 THEN CP=1
AF 850 IF ST=14 OR ST=7 THEN CP=CP-1:IF C
   P<1 THEN CP=16
CT 860 POSITION CX(CP),CY(CP):? #6;" "
EL 870 IF CP<5 THEN CHAR=ASC("$")
TH 880 IF CP>4 AND CP<9 THEN CHAR=ASC("!"
   )
XT 890 IF CP>8 AND CP<13 THEN CHAR=ASC("#
   ")
MU 900 IF CP>12 THEN CHAR=34
UU 910 IF TR=0 THEN POSITION CX(CP),CY(CP
   ):? #6;" ":GOSUB 970:IF A$=CHECK$ THEN
    GOSUB 2150:GOTO 300
PN 920 POSITION CX(CP),CY(CP):? #6;CHR$(C
   HAR)
RX 930 GOTO 790
FY 940 REM ────────────
NT 950 REM  WHICH MOVE?
GC 960 REM ────────────
HC 970 IF CHAR=ASC("#") THEN GOSUB 2270:R
   OW=3-(12-CP):GOSUB 480
EH 980 IF CHAR=ASC("$") THEN GOSUB 2270:R
   OW=4-CP:GOSUB 540
RS 990 IF CHAR=34 THEN GOSUB 2270:COL=17-
   CP:GOSUB 600
WA 1000 IF CHAR=ASC("!") THEN GOSUB 2270:
   COL=CP-4:GOSUB 690
PH 1010 SOUND 0,10,8,10:GOSUB 1720:SOUND
   0,0,0,0:GOSUB 1050:GOSUB 2270
TK 1020 REM ─────────────────────
FT 1030 REM  CALCULATE PERCENTAGE
TQ 1040 REM ─────────────────────
UR 1050 CSUM=0:FOR T=1 TO 16
CJ 1060 IF A$(T,T)=CHECK$(T,T) THEN CSUM=
   CSUM+1
HR 1070 NEXT T:P$=STR$(INT(CSUM*6.25))
MT 1080 POSITION 3,9:? #6;"   "
GN 1090 I=2:I=I-(LEN(P$)>1)-(LEN(P$)>2)
MU 1100 POSITION 3+I,9:? #6;P$:RETURN
JB 1110 REM ─────────────────
VU 1120 REM  DISPLAY CONGRAT'S
JH 1130 REM ─────────────────
EF 1140 POSITION 2,9:? #6;"CONGRATULATION
   S."
YL 1150 POSITION 2,10:? #6;"try a differe
   nt"
LP 1160 POSITION 6,11:? #6;"one now..":GO
```

SHIFT IT Listing 1

```
   SUB 2310
AW 1170 RETURN
QI 1180 REM ________________
DL 1190 REM  SETUP FUJI/ATARI LOGO 
PM 1200 REM ________________
SG 1210 A$="ABCDEFGHIJKLmnop":CHECK$=A$
ZZ 1220 U=USR(ADR(ATOI$),ADR(FUJI$),(MEM2
   *256)+264,1)
AM 1230 RETURN
OC 1240 REM ____________
CX 1250 REM  SETUP NUMBERS 
OI 1260 REM ____________
YA 1270 A$="ABCDEFGHIJKLMNOP":CHECK$=A$
EG 1280 U=USR(ADR(ATOI$),ADR(NUMB$),(MEM2
   *256)+264,1)
BE 1290 RETURN
XC 1300 REM ____________
BN 1310 REM  SETUP PAGE 6 
XI 1320 REM ____________
IS 1330 A$="ABCDefghijklMNOP":CHECK$=A$
GH 1340 U=USR(ADR(ATOI$),ADR(PAGE6$),(MEM
   2*256)+264,1)
YD 1350 FOR T=1 TO 10:POKE 204,MEM2:POKE
   203,0:NEXT T
AX 1360 RETURN
ON 1370 REM ____________
JX 1380 REM  SETUP LETTERS 
OT 1390 REM ____________
XJ 1400 A$="ABCDEFGHIJKLMNOP":CHECK$=A$
XM 1410 U=USR(ADR(ATOI$),ADR(UC$),(MEM2*2
   56),2)
AN 1420 RETURN
IP 1430 REM ____________________
YM 1440 REM  PRINT A$ TO TITLE SCREEN 
IV 1450 REM ____________________
CN 1460 POKE 54286,192
BK 1470 POSITION 7,8:? #6;A$(1,4):POSITIO
   N 7,9:? #6;A$(5,8):POSITION 7,10:? #6;
   A$(9,12):POSITION 7,11:? #6;A$(13,16)
BF 1480 RETURN
YF 1490 REM ____________
BC 1500 REM  GAME DISPLAY 
XJ 1510 REM ____________
HX 1520 GRAPHICS 18:POKE 54286,0
TM 1530 DL=PEEK(560)+PEEK(561)*256:POKE 7
   56,MEM1
AN 1540 POKE DL+6,135
KU 1550 POSITION 5,0:? #6;"shift it"
AY 1560 IF PICNUM=1 THEN GOSUB 1210
IV 1570 IF PICNUM=2 THEN GOSUB 1270
FY 1580 IF PICNUM=3 THEN GOSUB 1330
EG 1590 IF PICNUM=4 THEN GOSUB 1400
TQ 1600 GOSUB 1720:GOSUB 1770
WM 1610 FOR T=13 TO 16:POKE DL+T,6:NEXT T
DM 1620 POKE DL+12,135:POKE 204,MEM2:POKE
   205,MEM1
QD 1630 POSITION 3,9:? #6;"100% CORRECT"
WN 1640 POKE 512,11:POKE 513,6:POKE 54286
   ,192
BT 1650 FOR T=1 TO 20:POKE 204,MEM2:POKE
   205,MEM1:NEXT T
QQ 1660 POKE 704,240:POKE 705,240:POKE 53
   248,136:POKE 53256,3:POKE 623,4+32
GD 1670 POKE 53249,72:POKE 53257,3:POKE 5
   3261,0:POKE 53262,0
SY 1671 POKE 710,14
BJ 1680 RETURN
YJ 1690 REM ____________
BG 1700 REM  GAME DISPLAY 
XN 1710 REM ____________
DJ 1720 POSITION 11,3:? #6;A$(1,4):POSITI
   ON 11,4:? #6;A$(5,8):POSITION 11,5:? #
   6;A$(9,12):POSITION 11,6:? #6;A$(13,16
   )
AW 1730 RETURN
QI 1740 REM ____________________
OP 1750 REM  PRINT CHECK$ (DISPLAY) 
QO 1760 REM ____________________
RX 1770 POSITION 3,3:? #6;CHECK$(1,4):POS
   ITION 3,4:? #6;CHECK$(5,8)
PB 1780 POSITION 3,5:? #6;CHECK$(9,12):PO
   SITION 3,6:? #6;CHECK$(13,16)
BO 1790 RETURN
XM 1800 REM ____________
CO 1810 REM  TITLE SCREEN 
XS 1820 REM ____________
AL 1830 A$="shift it":PICNUM=1
WA 1840 GRAPHICS 2+16:POKE 712,208:POKE 7
   10,232:POKE 756,MEM1:POKE 711,56:POKE
   708,120
IO 1850 DL=PEEK(560)+PEEK(561)*256:POKE D
   L+12,135:POKE 1538,MEM2
AK 1860 POKE 512,0:POKE 513,6
JE 1870 POSITION 6,0:FOR C=1 TO LEN(A$)
EQ 1880 ? #6;A$(C,C);:GOSUB 2270:GOSUB 22
   90
DS 1890 NEXT C
WB 1900 POSITION 6,1:? #6;"________":GOSU
   B 2110:GOSUB 2290
KQ 1910 POSITION 3,2:? #6;"R.C.GOODFELLOW
   ":GOSUB 2110:GOSUB 2290
ZS 1920 POSITION 2,4:? #6;"DIFFICULTY(1-9
   ) 1":GOSUB 2110:GOSUB 2290
VW 1930 POSITION 5,6:? #6;"space bar":POS
   ITION 1,7:? #6;"to change picture":GOS
   UB 2110:GOSUB 2290
BD 1940 GOSUB 1210:POKE 54286,192:GOSUB 1
   460
UP 1950 CLOSE #1:OPEN #1,4,0,"K:":DIFF=1:
   QZ=0
BS 1960 POKE 559,34:POKE 764,255
ZJ 1970 IF STRIG(0)=0 THEN RETURN
ZK 1980 IF PEEK(53279)=6 THEN RETURN
IJ 1990 IF PEEK(764)=255 THEN 1970
VR 2000 GET #1,A:T$=CHR$(A)
EH 2010 IF A$=CHR$(155) THEN RETURN
IG 2020 IF T$=" " THEN POKE 559,0:PICNUM=
   PICNUM+1:IF PICNUM=5 THEN PICNUM=1
HV 2030 IF T$=" " AND PICNUM=1 THEN GOSUB
    1210:GOSUB 1460
SR 2040 IF T$=" " AND PICNUM=2 THEN GOSUB
    1270:GOSUB 1460
OY 2050 IF T$=" " AND PICNUM=3 THEN GOSUB
    1330:GOSUB 1460
MV 2060 IF T$=" " AND PICNUM=4 THEN GOSUB
    1400:GOSUB 1460
AF 2070 IF A>=49 AND A<=57 THEN POSITION
   18,4:? #6;T$:DIFF=A-48
UR 2080 GOTO 1960
SO 2090 GOTO 2090
UW 2100 REM  SOUND FX#1 (BANG/SNARE) 
NJ 2110 FOR T=15 TO 0 STEP -2:SOUND 1,5,8
   ,T:SOUND 0,100,12,T:NEXT T:SOUND 0,0,0
   ,0:SOUND 1,0,0,0:RETURN
SR 2120 REM  SOUND FX#2 (BUZZ) 
AY 2130 SOUND 1,200,12,10:GOSUB 2290:SOUN
   D 1,0,0,0:RETURN
QK 2140 REM  SOUND FX#3 (DONE IT) 
BK 2150 GOSUB 1140:FOR T=15 TO 5 STEP -1:
   SOUND 0,121,10,T:NEXT T
IX 2160 FOR T=1 TO 10:NEXT T
HA 2170 FOR T=15 TO 5 STEP -1:SOUND 1,60,
   10,T:NEXT T
JD 2180 FOR T=1 TO 10:NEXT T
PV 2190 FOR T=15 TO 5 STEP -1:SOUND 2,29,
   10,T:NEXT T
IH 2200 FOR T=1 TO 10:NEXT T
HP 2210 FOR T=5 TO 15:SOUND 0,121,10,T:SO
   UND 1,60,10,T:SOUND 2,29,10,T:NEXT T
LD 2220 FOR T=1 TO 50:NEXT T
KM 2230 FOR F=0.5 TO 0.1 STEP -0.1
GI 2240 FOR T=5 TO 0 STEP -F:SOUND 0,200,
   12,T:SOUND 1,243,10,T:SOUND 2,121,12,T
   :POKE 1608,T*16+T:NEXT T:NEXT F
AT 2250 RETURN
YJ 2260 REM  SOUND FX#4 (SLIDE) 
MY 2270 FOR T=10 TO 0 STEP -5:SOUND 0,T,1
   0,10:SOUND 1,C,10,10:NEXT T:SOUND 0,0,
```

SHIFT IT Listing 2

```
   0.0:SOUND 1,0,0,0:RETURN
JA 2280 REM  DELAY
BL 2290 FOR DEL=1 TO 1:NEXT DEL:RETURN
YD 2300 REM  TUNE
ZF 2310 RESTORE 2450:TE=2
BR 2320 READ A,B,C
TG 2330 IF A=-1 THEN 2390
OD 2340 IF A=-2 THEN 2410
AY 2350 IF A=0 THEN FOR T=1 TO 150:NEXT T
   :RESTORE :GOTO 2320
CM 2360 FOR T=15 TO 0 STEP -TE:SOUND 0,A,
   10,T:NEXT T
LI 2370 FOR T=8 TO 0 STEP -TE:SOUND 1,B,1
   0,T:SOUND 2,C,10,T:NEXT T
QO 2380 GOTO 2320
PU 2390 FOR T=1 TO 3:READ A
WD 2400 FOR Y=15 TO 0 STEP -TE:SOUND 0,A,
   10,Y:NEXT Y:NEXT T:GOTO 2320
IJ 2410 FOR Y=1 TO 2:READ A,B,C
VF 2420 FOR T=15 TO 0 STEP -TE:SOUND 0,A,
   10,T:SOUND 1,B,10,T:SOUND 2,C,10,T:NEX
   T T
MB 2430 NEXT Y
DB 2440 READ A,B,C:FOR T=15 TO 0 STEP -0.
   25:SOUND 0,A+T,10,T:SOUND 1,B+T,10,T:S
   OUND 2,C+T,10,T:NEXT T:RETURN
QX 2450 DATA 121,96,81
MZ 2460 DATA 162,108,81,-1,0,0
OL 2470 DATA 121,128,136
TS 2480 DATA 144,96,72
OI 2490 DATA 121,91,72
NG 2500 DATA 162,108,81,-2,0,0
QN 2510 DATA 121,96,81
BA 2520 DATA 162,108,81
QT 2530 DATA 121,96,81
BK 2540 DATA 0,0,0
QN 10000 REM  CHARACTER SET IN STRINGS
NG 10010 DIM UC$(512),PAGE6$(128),FUJI$(1
   28),NUMB$(128),ATOI$(33)
OE 10020 UC$="♥♥♥♥♥♥♥♥♥♥♥♣♣♣♣T8♣♣8T♣♣♣♣♥♥ @
   D@ ♥♥♥┤ D H ♥♥LX0♦D▄♥♥8d8P\Hv♥┴┴┴♥♥♥♥♥_
   ┴♣♣┴_♥♥0♣♣0♥♥XpX ♥♥♥00||00♥♥♥♥♥♥♥♥"
OD 10030 UC$(101)=" 0♦♥♥♥|♥♥♥♥♥♥♥♥♥♥0♣♥♥♥0
   ♥|♥0♥♥xLTdDx♥♥0p0000♥♥8L┴0♦||♥♥p=0┴▟x♥♥
   @@XX├♥♥|@xH:|x♥♥x@xdDx♥♥|H ◢0♦♦♥♥xdxdDx
   ♥♥"
WQ 10040 UC$(201)="xd|▘┴p♥♥♥0♣♥0♣♥♥♥0♣♥♣0
   ♦♥▘┴0♦0◢H ♥♥( ♥♥( ♥♥♥0┴▘ /▘ ♣ ♥x:├0♥0♥♥xL\\
   @|♥♥0xdD D♥♥xdxdDx♥♥xd@@Dx♥♥phDDHp♥♥|♦
   x♦"
RZ 10050 UC$(301)="@|♥♥|♦x♦@@♥♥xd@LDx♥♥DD
   |dDD♥♥|8000||♥▘▘▘▘ ♦x♥♥HP♦PHD♥♥@@@@♦|♥♥
   F jrBBB♥♥DDdTLD♥♥xdDDDx♥♥xdDx@@♥♥xdDDP1
   ♥♥"
SC 10060 UC$(401)="xdDxPL♥♥x♦x┤:|x♥♥|80000
   ♥♥DDDDLx♥♥DDDDh0♥♥BBR jF♥♥DH00HD♥♥DD80
   00♥♥|♣ @@|♥♥▖┴▘ 0▘ ┴▖ ♥♥@♦0┴▘ /♥p┴0▘ 0┴p♥♣8
   |V♣♣♣♥
OY 10070 NUMB$="♥♣0♣♣8♥♥♥8┤┴ (♥♥♥0◢♣◢0♥♥♥
   ((◢♥♥♥( 8┤8♥♥♥  8$┴♥♥♥x◢♣  ♥♥♥┴$┴$┴♥
   ♥♥┴$↑┤┤♥♥♥$ j**t♥♥♥$1$$(♥♥♥\BLP[♥♥♥,b$"
OY 10075 NUMB$(102)="|♥♥♥(h*/r♥♥♥/h.!(♥♥♥
   (h.)v♥♥"
YF 10080 NUMB$(101,101)=CHR$(34)
ZZ 10090 PAGE6$="♥|ff|♦p♥♥<(ff(g♥♥>♦♦of>♥
   ♥[♦|♦♦[♥♥♥┘\▖▖▖▖ ♥))@♥@)♥(X|♥♥♥)♥♥♥♥♥♥
   ♥♥▖▖▖▖▖\┘ ♥)@♥♥@)))┘ ├♥├┘ ))@♦ppp♦@♥♥├┘ ├
   "
PU 10100 PAGE6$(101)="♥♥├♥♥g┘ @33g♥♥Y ▀▀▀ Y
   ♥♥V♥♥♥V♥♥"
TV 10110 FUJI$="f) GAF♥)♥♥ssssSSS♥NNNNOOOg
   F▖b=b♥)♥♥├├┘┘┘┘ SCCCCCCCOGGGCCCC♥♥♥♥@@@
   @\→ ▶))X||C┘┘┘┘┘┘┘ CAAA@@@@♦x()))>♥▖↑6"
IR 10120 FUJI$(101)="6>6♥♥Vcffgf♥♥▖ HOMM♥
   ♥<=┴=X(♥"
IG 10130 ATOI$="hh▖Mh▖Lh▖Oh▖Nhh* ♥IL▖N/ Pv
   fHfOJPr♦"
DQ 10140 RETURN
```

```
BK 10 REM ┌─────────────────────────┐
BI 20 REM | Shift It string maker  |
MP 30 REM |    by R.C.Goodfellow   |
NI 40 REM |           ┌┐           |
TS 50 REM |        ▘Utilisoft      |
DJ 60 REM |          1989          |
BY 70 REM └─────────────────────────┘
PO 80 GRAPHICS 0:DIM F$(15):POKE 710,0:PO
   KE 709,10
OQ 90 ? "(D)isk or (C)assette?";:OPEN #1,
   4,0,"K:":GET #1,A:CLOSE #1
AF 100 IF A=68 THEN F$="D:STRINGS.LST"
IX 110 IF A=67 THEN F$="C:"
VB 120 ? "↰↓↓↓↓↓CREATING STRINGS ON DISK←
   ←←←";:IF A=67 THEN ? "CASSETTE"
QN 130 ? :OPEN #1,8,0,F$
RL 140 ? #1;"10000 REM  CHARACTER SET IN
   STRINGS "
DW 150 ? #1;"10010 DIM UC$(512),PAGE6$(12
   8),FUJI$(128),NUMB$(128),ATOI$(33)"
MM 160 ? #1;"10020 UC$=";CHR$(34);
NM 170 FOR T=1 TO 100:READ D:? #1;CHR$(D)
   ;:NEXT T:? #1
TC 180 ? #1;"10030 UC$(101)=";CHR$(34);
NQ 190 FOR T=1 TO 100:READ D:? #1;CHR$(D)
   ;:NEXT T:? #1
TW 200 ? #1;"10040 UC$(201)=";CHR$(34);
NB 210 FOR T=1 TO 100:READ D:? #1;CHR$(D)
   ;:NEXT T:? #1
VJ 220 ? #1;"10050 UC$(301)=";CHR$(34);
NF 230 FOR T=1 TO 100:READ D:? #1;CHR$(D)
   ;:NEXT T:? #1
WW 240 ? #1;"10060 UC$(401)=";CHR$(34);
PK 250 FOR T=1 TO 112:READ D:? #1;CHR$(D)
   ;:NEXT T:? #1
VK 260 READ D:IF D<>-1 THEN ? "UPPER CASE
    DATA MISSING":STOP
BH 270 ? #1;"10070 NUMB$=";CHR$(34);
NP 280 FOR T=1 TO 100:READ D:? #1;CHR$(D)
   ;:NEXT T:? #1
QB 290 READ D:? #1;"10075 NUMB$(102)=";CH
   R$(34);
OQ 300 FOR T=1 TO 27:READ D:? #1;CHR$(D);
   :NEXT T:? #1
JH 310 ? #1;"10080 NUMB$(101,101)=CHR$(34
   )"
OP 320 READ D:IF D<>-1 THEN ? "PAGE6 DATA
    MISSING":STOP
FQ 330 ? #1;"10090 PAGE6$=";CHR$(34);
NI 340 FOR T=1 TO 100:READ D:? #1;CHR$(D)
   ;:NEXT T:? #1
HO 350 ? #1;"10100 PAGE6$(101)=";CHR$(34)
   ;
PT 360 FOR T=1 TO 28:READ D:? #1;CHR$(D);
   :NEXT T:? #1
OZ 370 READ D:IF D<>-1 THEN ? "PAGE6 DATA
    MISSING":STOP
WQ 380 ? #1;"10110 FUJI$=";CHR$(34);
NS 390 FOR T=1 TO 100:READ D:? #1;CHR$(D)
   ;:NEXT T:? #1
TZ 400 ? #1;"10120 FUJI$(101)=";CHR$(34);
PK 410 FOR T=1 TO 28:READ D:? #1;CHR$(D);
   :NEXT T:? #1
OQ 420 READ D:IF D<>-1 THEN ? "PAGE6 DATA
    MISSING":STOP
XB 430 ? #1;"10130 ATOI$=";CHR$(34);
MZ 440 FOR T=1 TO 33:READ D:? #1;CHR$(D);
   :NEXT T:? #1
```

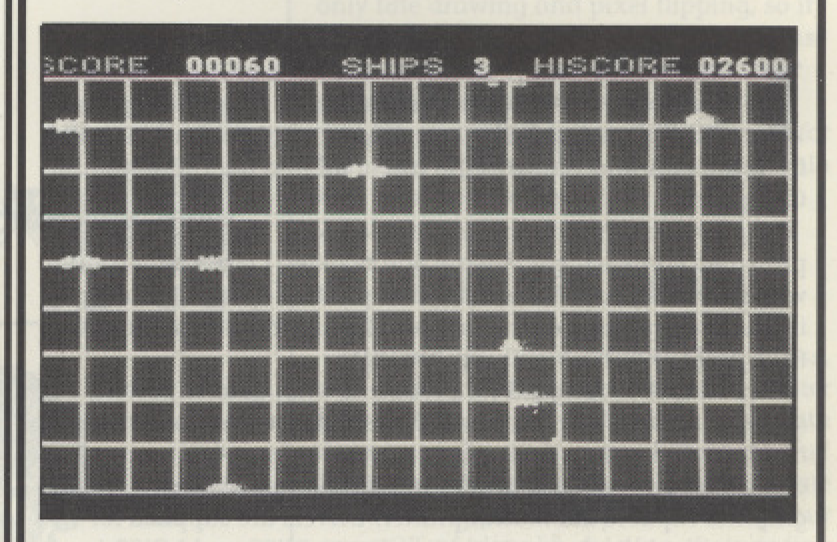
SHIFT IT Listing 2

```
UL 450 ? #1;"10140 RET."
NL 460 CLOSE #1:? "STRINGS CREATED":? "ME
   RGE THEM WITH THE MAIN PROGRAM.":END
UX 470 REM  OFFSET 0 (CHAR SET) 
FA 480 DATA 0,0,0,0,0,0,0,0
XP 490 DATA 0,16,16,16,16,84,56,16
OK 500 DATA 16,56,84,16,16,16,16,0
YD 510 DATA 0,32,64,255,64,32,0,0
JI 520 DATA 0,4,2,255,2,4,0,0
LD 530 DATA 76,216,48,96,196,140,0,0
UQ 540 DATA 56,100,56,80,220,200,118,0
ZN 550 DATA 24,24,24,0,0,0,0,0
SR 560 DATA 14,24,16,16,24,14,0,0
SI 570 DATA 224,48,16,16,48,224,0,0
BK 580 DATA 136,216,112,216,136,0,0,0
ES 590 DATA 48,48,252,48,48,0,0,0
TE 600 DATA 0,0,0,0,32,48,96,0
YJ 610 DATA 0,0,252,0,0,0,0,0
IN 620 DATA 0,0,0,0,48,16,0,0
MY 630 DATA 0,48,0,252,0,48,0,0
JU 640 DATA 120,204,212,228,196,120,0,0
TR 650 DATA 48,112,48,48,48,48,0,0
SJ 660 DATA 56,76,24,48,96,252,0,0
YU 670 DATA 112,152,48,24,140,120,0,0
ZR 680 DATA 192,192,216,216,252,24,0,0
EL 690 DATA 252,192,248,4,132,120,0,0
TT 700 DATA 120,192,248,228,196,120,0,0
KF 710 DATA 252,4,8,48,96,96,0,0
LU 720 DATA 120,228,120,228,196,120,0,0
WU 730 DATA 120,228,124,12,24,112,0,0
QD 740 DATA 0,48,16,0,48,16,0,0
HK 750 DATA 0,48,16,0,16,48,96,0
JY 760 DATA 12,24,48,96,48,8,4,0
CD 770 DATA 0,126,0,0,126,0,0,0
WX 780 DATA 48,24,12,6,12,16,32,0
CS 790 DATA 120,132,24,48,0,48,0,0
BZ 800 DATA 120,204,220,220,192,124,0,0
NB 810 DATA 48,120,228,196,252,196,0,0
ML 820 DATA 248,228,248,228,196,248,0,0
SJ 830 DATA 120,228,192,192,196,120,0,0
MB 840 DATA 240,232,196,196,200,240,0,0
TR 850 DATA 252,224,248,224,192,252,0,0
XJ 860 DATA 252,224,248,224,192,192,0,0
NK 870 DATA 120,228,192,204,196,120,0,0
OL 880 DATA 196,196,252,228,196,196,0,0
AO 890 DATA 252,56,48,48,48,252,0,0
ZM 900 DATA 12,12,12,12,156,120,0,0
NC 910 DATA 200,208,224,208,200,196,0,0
UU 920 DATA 192,192,192,192,224,252,0,0
HE 930 DATA 198,234,242,194,194,194,0,0
ZR 940 DATA 196,196,228,212,204,196,0,0
ZI 950 DATA 120,228,196,196,196,120,0,0
JC 960 DATA 248,228,196,248,192,192,0,0
AT 970 DATA 120,228,196,196,208,108,0,0
AG 980 DATA 248,228,196,248,208,204,0,0
RK 990 DATA 120,224,120,4,132,120,0,0
GQ 1000 DATA 252,56,48,48,48,48,0,0
QN 1010 DATA 196,196,196,196,204,120,0,0
KO 1020 DATA 196,196,196,196,104,48,0,0
TP 1030 DATA 194,194,210,234,234,198,0,0
HB 1040 DATA 196,200,48,48,200,196,0,0
XD 1050 DATA 196,196,56,48,48,48,0,0
OO 1060 DATA 252,16,32,64,192,252,0,0
OI 1070 DATA 15,24,12,48,12,24,15,0
IG 1080 DATA 0,64,96,48,24,12,6,0
PV 1090 DATA 240,24,48,12,48,24,240,0
QB 1100 DATA 16,56,124,214,16,16,16,0
VG 1110 DATA 255,0,0,0,0,0,0,0,-1
GZ 1120 REM  OFFSET 264 (NUMBERS) 
DD 1130 DATA 0,16,48,16,16,56,0,0
PB 1140 DATA 0,56,4,24,32,60,0,0
ZQ 1150 DATA 0,48,8,16,8,48,0,0
OC 1160 DATA 0,32,32,40,60,8,0,0
VD 1170 DATA 0,60,32,56,4,56,0,0
XT 1180 DATA 0,32,32,56,36,24,0,0
RH 1190 DATA 0,120,8,16,32,32,0,0
WJ 1200 DATA 0,24,36,24,36,24,0,0
OS 1210 DATA 0,24,36,28,4,4,0,0
IR 1220 DATA 0,36,106,42,42,116,0,0
QM 1230 DATA 0,36,108,36,36,126,0,0
YM 1240 DATA 0,92,194,76,80,254,0,0
JO 1250 DATA 0,44,98,36,34,124,0,0
HM 1260 DATA 0,40,104,42,47,114,0,0
NF 1270 DATA 0,47,104,46,33,126,0,0
IJ 1280 DATA 0,40,104,46,41,118,0,0,-1
JV 1290 REM  OFFSET 264 (PAGE 6) 
OJ 1300 DATA 0,252,102,102,124,96,240,0
GF 1310 DATA 0,60,126,102,102,126,231,0
DP 1320 DATA 0,62,96,96,111,102,62,0
MP 1330 DATA 0,254,96,124,96,96,254,0
XF 1340 DATA 0,0,3,7,15,15,15,15
HP 1350 DATA 0,255,255,255,192,128,192,25
   5
CH 1360 DATA 0,254,255,254,0,0,0,255
AQ 1370 DATA 0,0,0,0,0,0,0,0
AE 1380 DATA 15,15,15,15,15,7,3,0
DX 1390 DATA 255,192,128,0,128,192,255,25
   5
MS 1400 DATA 255,3,1,0,1,3,255,255
AY 1410 DATA 192,224,240,240,240,224,192,
   0
DX 1420 DATA 0,1,3,1,0,0,1,0
VW 1430 DATA 0,231,3,227,51,51,231,0
OH 1440 DATA 0,217,153,143,143,153,217,0
GD 1450 DATA 0,128,128,0,0,128,128,0,-1
PC 1460 REM  OFFSET 264 (FUJI LOGO) 
DK 1470 DATA 230,41,71,65,70,0,255,0
HY 1480 DATA 0,115,115,115,115,243,243,24
   3
LP 1490 DATA 0,206,206,206,206,207,207,20
   7
VJ 1500 DATA 103,145,98,146,98,0,255,0
LZ 1510 DATA 0,1,1,1,3,3,3,3
YJ 1520 DATA 243,227,227,227,195,195,195,
   195
RL 1530 DATA 207,199,199,199,195,195,195,
   195
GW 1540 DATA 0,128,128,128,192,192,192,19
   2
BW 1550 DATA 7,31,127,255,255,255,254,124
UB 1560 DATA 195,131,131,131,3,3,3,3
PY 1570 DATA 195,193,193,193,192,192,192,
   192
EO 1580 DATA 224,248,254,255,255,255,127,
   62
MN 1590 DATA 0,9,28,54,54,62,54,0
ID 1600 DATA 0,249,99,102,102,103,102,0
MV 1610 DATA 0,15,141,205,207,205,205,0
ZE 1620 DATA 0,60,152,152,24,152,188,0,-1
BI 1630 REM  COPY CHARSET M/C 
UC 1640 DATA 104,104,133,205,104,133,204,
   104,133,207,104,133
SZ 1650 DATA 206,104,104,170,160,0,177,20
   4,145,206,136,208
ZV 1660 DATA 249,230,205,230,207,202,208,
   242,96
```

DISK BONUS

GRIDWARS

by Ross McNaughton



Fast and furious action created with Broderbund's ARCADE MACHINE

It's Monday morning again and the start of another week's hunting on the Grid. Wearily you take to the controls of your fleet of remote controlled blastships and try to think only of the profits. All the rules say you should hunt in pairs but the greater danger of going it alone is offset by the higher gain. Your main targets are the giant Phase Spiders, worth up to a massive 200 credits, but they are not the only creatures on the Grid, nor are they the most dangerous. Only by clearing the grid of everything, from the harmless Crawlers and Go-Worms to the deadly Spinners, Mines and Hive Bombers, can you hope to succeed.

Go to it young man, the work needs to be done and without those Credits life is going to be dull indeed. All you need to take along is your joystick, it'll all come back as the adrenalin starts to flow.

GRIDWARS was created with THE ARCADE MACHINE published by Broderbund, a program that enables top quality arcade games to be created quite simply and with very little programming knowledge. Sadly it is no longer available commercially but there must be a number of Atari owners who have a copy. Any more programs out there waiting to be included as a future NEW ATARI USER DISK BONUS?

GRIDWARS is available as the BONUS on this Issue's disk. Disk subscribers will have received their copy already but the disk is available separately for just £2.95. Send a cheque or Postal Order with a written order to PAGE 6, P.O. Box 54, Stafford, ST16 1DR or use the order form on page 49.

NEWS STATION

John S Davison gets another chance to try a desk top publishing program for the XL/XE and finds a very impressive package

I can hardly believe it! Hot on the heels of Page Marshal (reviewed last issue) we have another 8-bit desktop publishing package! This one, known as News Station, hails from the USA and is now being imported into the UK by Callisto Computers.

The package contains one single-sided 5.25" disk and a crudely presented corner stapled instruction booklet. I can't understand why they didn't use News Station to produce a decent looking instruction manual, as the one supplied isn't much of an advert for a desktop publishing program.

News Station is designed for producing high quality posters, signs, brochures, adverts, news sheets, and similar documents. To run it you'll need an 8-bit machine with at least 48K memory, a disk drive, an Atari 850 printer interface (or equivalent), and a graphics capable dot matrix printer. Drivers are supplied for several popular printers, including Epson RX80 and MX80 (and compatibles), Star/Gemini SG10 and 10X, NEC ProWriter, and the Atari XMM-801 (which doesn't need an interface). Other printers may be supported by building a custom driver using the utility program supplied.

The disk contains two main programs, known as The Plate Editor and The Press. The Plate Editor provides facilities for composing and editing a screenful of text and graphics (known as a 'plate'), while The Press handles the printing function. Six font files are also supplied, so you can print your text in different styles. This is rather miserly compared to the 30+ fonts provided with Page Marshal. There are no sample documents either, so you have to learn by building your own from scratch.

News Station's only unit of printed output is the page, which consists of eight 'plates' (two across by four down the page), each of which must be composed using the Plate Editor. A plate may be reused within a page, and blank plates employed if you want to leave part of your page unused, so you don't need to compose eight unique plates before you can print. You can only ever view one plate at a time, making the lining up of text or graphics across plate boundaries a real pain. It's therefore essential to accurately sketch the page design on square ruled paper beforehand, so you know where the boundaries fall.

PLATE EDITING

The Plate Editor screen is divided into two parts. The top area measures 320 x 152 pixels (40 x 19 characters) and represents the plate, while the bottom holds three lines of status and option selection data. Commands are entered directly from the keyboard mainly as CTRL/key combinations, as there are no menus.

The editor operates in two modes, text or graphics, and by flipping between them you can work either at the character or pixel level. Text mode allows you to key in any standard keyboard character or the Atari's special graphics characters. The keyboard must be in UPPER CASE for the latter to work, a point not mentioned in the instructions.

The editor can use the standard Atari font plus one alternate font at any given instant. A different alternate font may be loaded from disk at any time, providing it's supplied as a standard 9 sector font file. Once text has been placed on the plate using a particular font it remains unaffected by subsequent loading of other fonts. This gives you freedom to use as many different fonts as you wish within a plate.

There's no font editor provided, so you can only change the supplied fonts or build new ones via a separate program. Font editors together with ready made fonts are often available from public domain software libraries, indeed there is an excellent one with a few fonts in the PAGE 6 Library on Disk #20 and several fonts can be taken off of the PAGE 6 Issue disks. Incidentally, Page Marshal's fonts loaded into News Station without trouble.

You're not just limited to standard size characters, as fonts may be used in 64 different sizes! This means you can put big bold headlines at the top of your page, with detailed text in a smaller size underneath, however the simple font scaling method used makes the larger characters look rather blocky.

Positioning of text is completely manual, there's no automatic centring, wordwrap, wordflow, justification, or other fancy features. Typing position is indicated by a flashing cursor, which moves as you type. Insert and Delete keys aren't supported, and there are no block manipulation facilities either, so text editing is somewhat basic and can be very time-consuming!

Other facilities in text mode allow you to set the left margin width, to micro-position your text by moving the cursor up or down in units of one scan line and to alter the spacing between lines of characters. ASCII files from a wordprocessor or text editor may also be loaded into a plate, and this worked OK with AtariWriter Plus files. However, no text line may be longer than 40 characters, as excess characters are lost.

GRAPHICS TOO!

This is where News Station scores over Page Marshal. It can also handle graphics in the form of Print Shop icons and standard 62 sector picture files.

One or more Print Shop icons can be loaded anywhere on the plate in any of three sizes, but again I found the largest size tended to blockiness and also noticeably distorted the picture's proportions. Icons can be easily loaded from Print Shop icon library disks, but not directly from the original Print Shop or

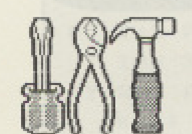
NEWS STATION

New Desktop Publishing Program for Atari 8-Bit Machines

This page was produced using News Station running on an Atari 130XE and was printed on a Star SG-10 dot matrix printer. The headline font is "SQUARE" font supplied with News Station, while the subheading uses the standard Atari font built into the computer. These words are printed in "HIGHQUAL", again supplied with News Station. As you can see the results are quite usable.

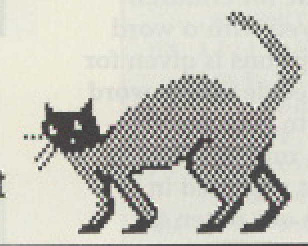
You can also use

Print Shop Icons


Tools

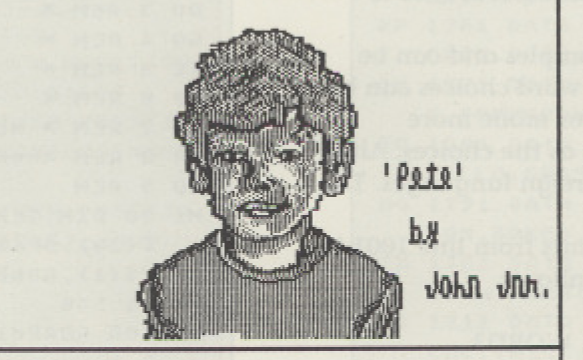

Guitar


Ski



...in different sizes too!

Picture Files

It's also possible to import 62 sector picture files into News Station. This picture of Pete was drawn with AtariArtist by John Davison Jnr.





Lines and Patterns

Vertical and horizontal lines can easily be drawn using the joystick and eye-catching patterns created with the Atari's control characters.

Print Shop Companion program disks. These need moving to a workdisk first, but News Station's instructions don't tell you how. I did it by loading the required icons into Print Shop's Icon Editor and saved them to a workdisk from there.

A low cost alternative source of graphics for News Station is the Page 6 Print Shop Collection and Option Pack disks, which between them contain over 1000 (yes, one thousand) ready-made icons! You'll find an icon for virtually every purpose here, and at less than £2 per disk you can't go wrong.

I also loaded 62 sector Micropainter picture files without problems, however, only the top five-sixths of the picture fits onto the plate, a real nuisance if you're using pictures which weren't drawn with News Station in mind. If you're drawing them specially you can allow for this though.

The most popular 8-bit art package is probably AtariArtist, but its compressed picture files are incompatible with News Station. However, there's an undocumented feature in AtariArtist permitting the saving of files in 62 sector format. Just press the > (Greater-Than) key while viewing the picture and a 62 sector file called PICTURE will immediately be written to disk. If you then use DOS to rename it with a file extender of PIC you'll find it loads into News Station without trouble.

The Plate Editor provides another means of producing graphics or editing imported pictures. You can draw directly onto the plate using the keyboard, joystick, or Koala Pad. Facilities are extremely basic, allowing only line drawing and pixel flipping, so if you need more than this you'd have to use a separate art program and import the graphics as described above. It's a great pity the author didn't include support for the Atari Touch Tablet though, as Koala Pad is almost unknown in the UK.

ROLL THE PRESS!

Printing is handled via The Press, achieved by simply selecting the printer type and the eight plates from your data disks to make up a page. But be careful! If you accidentally choose a wrong plate there's no apparent way of correcting your error OR of cleanly aborting the printing run which automatically follows plate selection. This is very frustrating, and a classic case of stupid design. However, I discovered an undocumented feature (bug?) - if you press the numeric 1 key, the disk directory is re-read and all plate selections blanked, allowing you to start over again!

I managed to lock up the program several times, and couldn't see why. News Station isn't very good at error messages either, and sometimes sat ignoring my attempts to communicate with it without telling me what I was doing wrong. Once you see the printed output though, you'll forgive the program its annoying little foibles. On my Star SG10 the quality was impressive, and easily good enough for most home and small business uses.

Did I say foibles? Perhaps I should say glaring faults and omissions, but there's probably nothing you can't work around. Even so, the author really should provide a better instruction manual, some sample plates, more error messages, and redesign The Press's plate selection code. I'd also like access to DOS facilities, a font editor, and simultaneous viewing of multiple plates included, but this is probably wishful thinking.

Despite its shortcomings I really like News Station. It's one of those rare packages which genuinely expands the scope and usefulness of your 8-bit Atari. This is especially true when used in conjunction with programs such as AtariArtist and Print Shop, and while it's not as slick or as easy to use as these, it's every bit as useful. If you need a simple, general purpose desktop publishing package, News Station could be the one. ●

NEWS STATION
Published by Reeve Software
Available from Callisto Computers
Price £23.50

LEARN TO READ

Learn To Read 1 is an educational game for children learning to read. A sentence is displayed with a word missing (replaced by ???). A list of 4 options is given for the word in the box below. The child must decide which word is correct and press a key 1-4 corresponding to the correct word. There are 10 words to fill in per game, and a check routine ensures that the same question is not repeated in each game. When the game is over the score out of ten is shown, along with the option to play again (START) or to quit (OPTION).

The questions in the listing are only examples and can be changed quite easily. The sentences and word choices can be made fairly easy, as they are at present, or made more complicated by using very similar words as the choices. Alternative spellings could be used or even foreign languages. The choice is yours.

The questions are held in DATA statements from line 1001 in steps of 10. Each question is built up as follows:

THE QUESTION, WORD1, WORD2, WORD3 , WORD4, KEYCODE, CORRECT

Word 1-4 are the possibilities. Keycode is the key handler code for which key will contain the correct answer. The keys 1-4 have the following handler codes:

1 - 31
2 - 30
3 - 26
4 - 24

Correct is the correct word. Just take a look at the questions in the program to get the idea and change the DATA to suit yourself. The program is set up for 50 sets of questions but this can be changed by altering the figure 50 in line 201 to the number of questions you require. All questions must be added as DATA with increments of 10. The next lines added would be 1501 and 1511 and so on.

by Dean Garraghty

> *This listing is published in response to requests that we publish more listings that use simple Basic commands and that can be changed quite easily by the user. Let us know what you think of these type of programs and, if we get a positive response, we will publish more.*

```
EI 1 REM ********************************
SS 2 REM *         LEARN TO READ        *
RQ 3 REM *              by              *
GO 4 REM *        Dean Garraghty        *
TC 5 REM *                              *
ED 6 REM * ---------------------------- *
NK 7 REM * NEW ATARI USER - October 89 *
EP 8 REM ********************************
NO 9 REM
MI 90 DIM SEN$(100),OP1$(20),OP2$(20),OP3
   $(20),OP4$(20),ACT$(20),GONE$(20),DUMM
   Y$(1),GONE(10)
TO 95 S=0
UI 100 GRAPHICS 17:SETCOLOR 2,0,0:POKE 75
   2,1
ZB 110 ? #6;"  LEARN TO READ 1"
JT 120 ? #6
UU 130 ? #6;" by dean garraghty"
JX 140 ? #6
YR 150 ? #6;"press the start key"
PR 160 IF PEEK(53279)=6 THEN 195
OV 165 GOTO 160
XO 195 POKE 764,255
XV 197 FOR Z=1 TO 10
WQ 200 GRAPHICS 0:POKE 752,1:SETCOLOR 2,0
   ,0:POKE 559,0
DG 201 X=INT(RND(0)*50)
UR 202 IF Z=1 THEN GOTO 206
LJ 203 FOR K=1 TO Z
YC 204 IF GONE(K)=X THEN POP :GOTO 201
AW 205 IF GONE(K)<>X THEN NEXT K
VU 206 GONE(Z)=X:RESTORE 1000+(X*10)+1
```

A simple educational program for teaching English or other languages that you can easily amend to suit your own needs

```
RP 210 READ SEN$,OP1$,OP2$,OP3$,OP4$,HANC
   ODE,ACT$
ZJ 211 POSITION 5,0:? "┌──────────┐"
UU 212 POSITION 5,1:? "|QUES.:"
YG 213 POSITION 12,1:? Z:POSITION 15,1:?
   "|"
FV 214 POSITION 5,2:? "└──────────┘"
PE 220 POSITION 5,10:? SEN$
KB 225 POSITION 0,15:? "┌───────────
   ──────────────────────────┐"
AY 230 POSITION 0,16:? "|  OPTIONS ARE:
                          |"
CC 231 POSITION 0,17:? "|":POSITION 38,17
   :? "|"
CP 240 POSITION 0,17:? "|  1 ";OP1$:POSIT
   ION 38,17:? "|"
HI 241 POSITION 0,18:? "|  2 ";OP2$:POSIT
   ION 38,18:? "|"
MB 242 POSITION 0,19:? "|  3 ";OP3$:POSIT
   ION 38,19:? "|"
UO 243 POSITION 0,20:? "|  4 ";OP4$:POSIT
   ION 38,20:? "|"
OY 250 POSITION 7,21:? "WHICH DO YOU THIN
   K IT IS?":POSITION 0,21:? "|":POSITION
    38,21:? "|"
LY 255 POSITION 0,22:? "└───────────
   ──────────────────────────┘"
RW 256 POKE 559,34
FI 260 IF PEEK(764)=255 THEN 260
QV 270 IF PEEK(764)=HANCODE THEN POSITION
    10,12:? "THAT IS CORRECT!!":S=S+1
MC 280 IF PEEK(764)<>HANCODE THEN POSITIO
   N 5,12:? "THAT IS NOT THE CORRECT WORD
   ."
VY 281 IF PEEK(764)<>HANCODE THEN POSITIO
   N 5,13:? ACT$;" WAS THE CORRECT WORD."
IG 285 FOR R=1 TO 750:NEXT R
XT 287 POKE 764,255
MY 290 NEXT Z
XD 400 REM GIVE SCORE,ETC.
NO 410 GRAPHICS 17:? #6:? #6
JT 415 SETCOLOR 0,10,10
HU 420 ? #6;"   YOU SCORED ";S
XS 430 ? #6;"     OUT OF TEN."
YO 440 ? #6:? #6:? #6
HO 450 ? #6;"press start to play"
BY 460 ? #6;"press option to quit"
KG 470 IF PEEK(53279)=6 THEN CLR :RUN
PU 480 IF PEEK(53279)=3 THEN GRAPHICS 0:N
   EW
QE 490 GOTO 470
CY 1001 DATA THE ??? SAT ON THE MAT,DOG,C
   AT,TREE,POP,30,CAT
EK 1011 DATA I WENT TO THE ??? FOR A HOLI
   DAY,PARK,SEASIDE,SHOP,SCHOOL,30,SEASID
   E
KE 1021 DATA I WENT TO THE SHOP WITH SOME
    ???,MONEY,BOOKS,GAMES,CATS,31,MONEY
IE 1031 DATA MOTHER SAYS NOT TO PLAY WITH
    ???,CARS,DOGS,MATCHES,TREES,26,MATCHE
   S
WJ 1041 DATA ??? GROW ON TREES,CATS,DOGS,
   LEAVES,COMPUTERS,26,LEAVES
LI 1051 DATA I LIKE TO EAT ???,LEAVES,TRE
   ES,GRASS,SWEETS,24,SWEETS
FS 1061 DATA WE WENT FOR A WALK IN THE ??
   ?,PARK,JUNGLE,HOUSE,COMPUTER,31,PARK
VJ 1071 DATA I LIKE READING ???,SWEETS,BO
   OKS,FLOORS,DOGS,30,BOOKS
PT 1081 DATA ??? ARE NOT PETS,DOGS,CATS,E
   LEPHANTS,GERBILS,26,ELEPHANTS
JP 1091 DATA I HAD A ??? LUNCH TODAY,FAST
   ,MEADOW,BEE,BIG,24,BIG
PM 1101 DATA I LIKE TO GO ???,CAMPING,MEA
   DOW,COMPUTER,MOTHER,31,CAMPING
AR 1111 DATA CATS HAVE A COAT OF ???,SKIN
   ,CLOTHES,FUR,DOG,26,FUR
```

```
IF 1121 DATA COMPUTERS ARE ???,MEADOW,FUN
   ,SWEETS,CAMPING,30,FUN
CK 1131 DATA THE FARMER ??? TALL CORN,GRE
   W,ATE,NOW,GOOD,31,GREW
EB 1141 DATA LET'S STOP ??? FOR WATER,COM
   PUTER,CAR,HERE,BECAUSE,26,HERE
SC 1151 DATA HE ??? GOING ON WALKS,FIND,L
   OOK,THERE,LIKES,24,LIKES
JE 1161 DATA THE ICE WAS ??? COLD,NOW,HEL
   LO,VERY,MEADOW,26,VERY
UJ 1171 DATA I LIKE ??? CATS BEST,BROWN,N
   OW,GOODBYE,HELLO,31,BROWN
TY 1181 DATA THE ??? LOOKED VERY BIG,MILK
   ,TREES,HELLO,TRY,30,TREES
WY 1191 DATA HE CAUGHT ??? FISH TODAY,HEL
   LO,TOMMOROW,COMPUTER,TEN,24,TEN
DN 1201 DATA HE ??? A NEW JOB,FELL,HELLO,
   NEW,FOUND,24,FOUND
DC 1211 DATA THEY SANG ???,LOUDLY,CAT,DOG
   ,COMPUTER,31,LOUDLY
HH 1221 DATA I ??? MY RED BIKE,TRY,HELLO,
   SOLD,BYE,26,SOLD
KH 1231 DATA DON'T ??? BAD BERRIES,BYE,EA
   T,READ,NEW,30,EAT
IY 1241 DATA ALL THE HORSES WERE ???,PINK
   ,BLUE,ORANGE,BROWN,24,BROWN
UW 1251 DATA THE ??? LIKE TO SLEEP,COMPUT
   ERS,MEADOW,CATS,GRASS,26,CATS
KP 1261 DATA ??? CAN GALLOP QUICKLY,BEES,
   CATS,DOGS,HORSES,24,HORSES
IU 1271 DATA THIS IS A ??? STORM,HELLO,BA
   D,TOMMOROW,MEADOW,30,BAD
TO 1281 DATA BRING ME YOUR ??? SOCKS,OLD,
   HELLO,GRASS,CARE,31,OLD
HA 1291 DATA MOTHER ??? SOME BUNS,LOOK,FL
   OOR,BAKED,GREW,26,BAKED
ZN 1301 DATA THEY ??? THE WALL RED,LOOKED
   ,SAW,PAINTED,FLOOR,26,PAINTED
YR 1311 DATA THIS FOG IS ???,BROWN,LOUD,B
   LUE,THICK,24,THICK
CG 1321 DATA THE LARGE ??? ROARED LOUDLY,
   GIANT,FLOWER,WALL,KEY,31,GIANT
LU 1331 DATA SOME TREES ONLY GROW ???,TOD
   AY,SMALL,HELLO,BLUE,30,SMALL
XR 1341 DATA FLOWERS ??? ALONG THE STREAM
   ,LOUD,TODAY,HELLO,GREW,24,GREW
PM 1351 DATA THE SKY IS ??? TODAY,BLUE,GR
   EEN,PURPLE,LILAC,31,BLUE
IR 1361 DATA IT IS VERY ??? TODAY,HELLO,G
   OODBYE,HOT,PINK,26,HOT
BP 1371 DATA THAT FIRE ENGINE IS ???,ORAN
   GE,RED,PINK,BLUE,30,RED
LB 1381 DATA I TOOK MY ILL DOG TO THE ???
   ,VET,HOSPITAL,HELLO,PARK,31,VET
XO 1391 DATA THAT TRAIN IS ???,JUNGLE,HEL
   LO,PINK,FAST,24,FAST
BK 1401 DATA MY BUDGIE IS ???,PINK,RED,OR
   ANGE,BLUE,24,BLUE
EZ 1411 DATA THE SUN IS ???,HELLO,TODAY,S
   HINING,PINK,26,SHINING
RE 1421 DATA MY COMPUTER IS AN ???,ATARI,
   SINCLAIR,ACORN,IBM,31,ATARI
GO 1431 DATA YOU ARE TYPING ON A ???,HELL
   O,KEYBOARD,SKY,DOOR,30,KEYBOARD
US 1441 DATA I LIKE TO WATCH ???,HELLO,GO
   ODBYE,TODAY,TELEVISION,24,TELEVISION
FZ 1451 DATA CATS AND DOGS ???,FIGHT,HELL
   O,DOOR,BYE,31,FIGHT
IM 1461 DATA I ??? AT NIGHT,LIKE,SLEEP,JU
   MP,NO,30,SLEEP
IY 1471 DATA MOTHER SAYS NOT TO GO WITH ?
   ??,CATS,DOGS,STRANGERS,HELLO,26,STRANG
   ERS
JY 1481 DATA DON'T PLAY ON THE RAILWAY ??
   ?,LINES,CATS,DOGS,GERBILS,31,LINES
HM 1491 DATA NEVER PLAY ON ???,HELLO,BYE,
   SAY,ROADS,24,ROADS
```

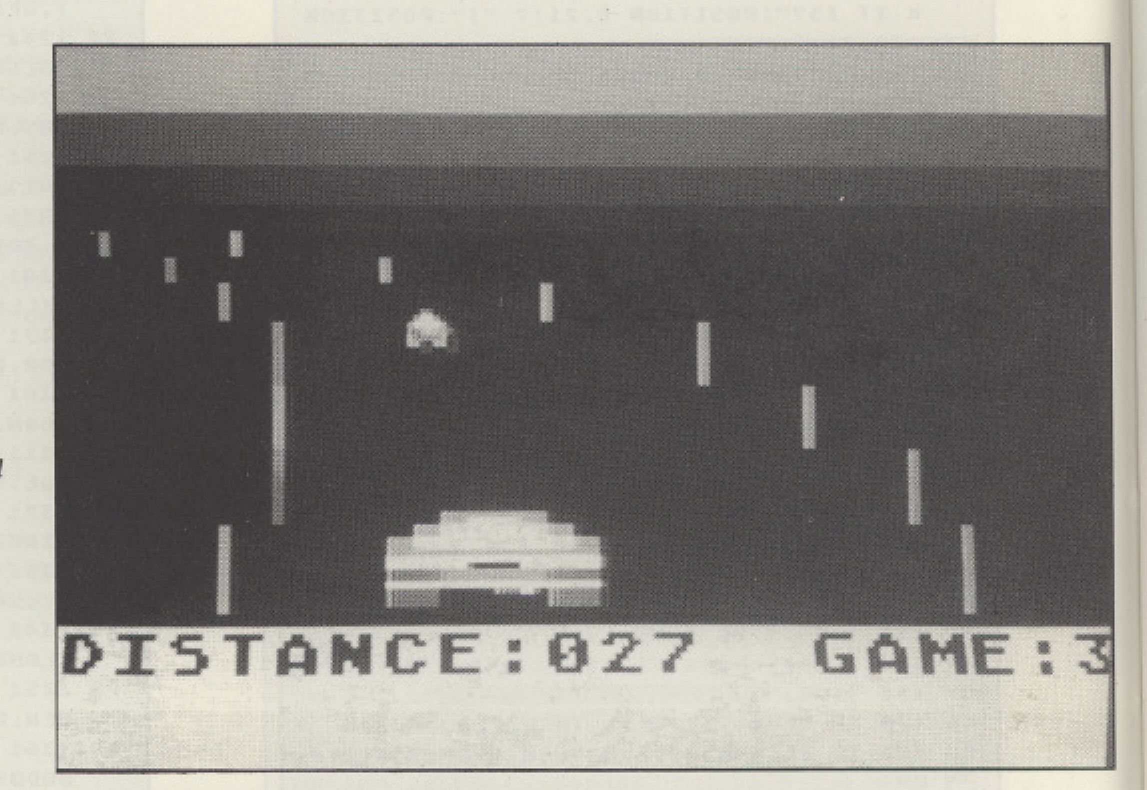
MEAN MOTOR

The day is over, more deals concluded, the effect of the Nouveau Beaujolais has worn off and it's time to head on home. Toss the Filofax into the Porsche and away we go! Oh, no is that the time? Mandy's doing something special tonight - piquant chicken pieces in that exquisite lemon sauce with a lightly tossed salad, from the new G-Plan diet book - and she'll be awfully wild if I'm late. Better step on it tonight.

Isn't it amazing? Everytime you need to get somewhere in a hurry there are all these frightful people on the road just getting in your way. You'd think that they can see this is Porsche. Just try to avoid them I suppose, don't want to scratch the paintwork. I just hope that the car phone doesn't ring, it might be Mandy.

Rinnggg ...... rinnggg!

Or ... another driving game!





by Gavin Davidson

HOW TO DRIVE

START: BEGINS GAME
SELECT: CHANGES LEVEL (1-4)
OPTION: RESETS THE GAME

Each level last one minute. If a distance of 80 or over is obtained the game will progress to the next level. There are 8 levels to get through.

JOYSTICK

LEFT goes left!
RIGHT goes right!
FIRE BUTTON slows down the car

Your car automatically goes through gear changes. Hitting poles at the side of the road is not good for the paintwork and may crash your car

TUNING UP

You may like to try your hand at a spot of tuning. Try a few POKEs into the following

1692 - Determines frequency of right hand bends
1693 - Determines frequency of left hand bends
1694 - Determines frequency of oncoming cars
1695 - Time allowed for game (default 1 minute)

MEAN MOTOR

```
EI 1 REM ********************************
SJ 2 REM *          MEAN MOTOR          *
TA 3 REM *                              *
TE 4 REM *      by Gavin Davidson       *
TC 5 REM *                              *
ED 6 REM * ---------------------------- *
NK 7 REM * NEW ATARI USER - October 89 *
EP 8 REM ********************************
NO 9 REM
CU 11 GRAPHICS 0:? "K":POKE 752,1:POSITIO
   N 0,0:? "......PLEASE WAIT FOR 30 SECO
   NDS........"
VS 12 FOR R=0 TO 1200:NEXT R
JA 15 GRAPHICS 5+16:POKE 559,0:POKE 16,64
   :POKE 53774,64
FC 16 POKE 704,56:POKE 705,22:POKE 706,15
   0:POKE 707,10:POKE 708,2:POKE 709,62:P
   OKE 710,48:POKE 711,254:POKE 712,0
QM 50 FOR CLR=16384 TO 18432:POKE CLR,0:N
   EXT CLR
FR 61 FOR J=0 TO 33:READ A:POKE 1620+J,A:
   NEXT J:POKE 512,103:POKE 513,6:X=USR(1
   628):POKE 54286,192
XK 62 POKE 560,0:POKE 561,6
TE 63 DL=PEEK(560)+256*PEEK(561)
TY 64 FOR T=0 TO 67:READ A:POKE 1536+T,A:
   NEXT T
CV 66 FOR T=0 TO 1264:READ A:POKE 20480+T
   ,A:NEXT T
IQ 91 POKE 88,0:POKE 89,64:POKE 87,5
CE 92 R=0:C=2:T=6:P=39
YM 93 IF C=4 THEN C=2
IS 94 IF T<1 THEN T=1:R=R-1
CJ 95 COLOR C:PLOT 12+R,P:DRAWTO 12+R,P-T
   :PLOT 68-R,P:DRAWTO 68-R,P-T:COLOR 1:F
   OR G=13+R TO 67-R
QD 96 PLOT G,P:DRAWTO G,P-T:NEXT G:C=C+1:
   P=P-T-1:T=T-0.9:R=R+4:IF R<25 THEN GOT
   O 93
ND 100 POKE 89,PEEK(89)+3:POKE 87,0:POKE
   752,1:POSITION 12,1:? #6;"DISTANCE:000
     GAME:1":POKE 712,26
CK 102 POKE 54279,68:POKE 559,46:POKE 532
   77,3:POKE 53256,3:POKE 53257,3:POKE 53
   260,21:POKE 623,49:GAME=17:B=0:C=2
YS 103 TOTAL=0:BONUS=0:POSITION 12,2:? #6
   ;"                    ":IF PEEK(53279
   )<>5 THEN GOTO 110
UE 104 B=B+4:C=C+2:GAME=GAME+1:IF GAME>20
    AND BONUS=0 THEN GAME=17:B=0:C=2
EC 106 RATE=1:VOL=10:LEN=0:GOSUB 135
GG 110 POKE 17223,GAME:POKE 1692,248-B:PO
   KE 1693,252-B/2:POKE 1694,C+1:IF PEEK(
   53279)<>6 AND BONUS<>1 THEN 103
LI 111 RATE=1:VOL=0:LEN=1:GOSUB 135
PW 113 FOR R=1664 TO 1691:POKE R,0:NEXT R
WW 114 POKE 1665,1:POKE 1675,6:POKE 1676,
   166
QR 115 POKE 1695,60:POKE 17213,16:POKE 17
   214,16:POKE 17215,16:POKE 77,0
IM 116 X=USR(21591)
RU 118 IF PEEK(1691)<>0 THEN RATE=0.6:VOL
   =12:LEN=5:GOSUB 135:GOTO 102
RK 119 IF PEEK(17213)>16 OR PEEK(17214)>2
   3 THEN RATE=0.07:VOL=14:LEN=1.3:GOSUB
   135:BONUS=1:GOTO 121
JE 120 RATE=1:VOL=0:LEN=5:GOSUB 135:GOTO
   102
ER 121 NWTOTAL=(PEEK(17213)-16)*100+(PEEK
   (17214)-16)*10+PEEK(17215)-16+TOTAL:TO
   TAL=NWTOTAL
LA 122 POSITION 12,2:? #6;"DISTANCE SO FA
   R:";TOTAL;"   ":IF GAME=24 THEN GOTO 1
   02
```

```
NP 123 GOTO 104
TQ 135 FOR T=15 TO VOL STEP -RATE:FOR P=0
    TO LEN:SOUND 0,P,10,T:SOUND 1,P+2,10,
   T:SOUND 2,P+T,10,T:NEXT P:NEXT T
NR 136 FOR T=0 TO 3:SOUND T,0,0,0:NEXT T:
   RETURN
IA 140 DATA 169,24,141,121,6,76,98,228,10
   4,162,6,160,84,169,7,32,92,228,96
UV 141 DATA 72,206,121,6,173,121,6,141,10
   ,212,141,26,208,104,64
LF 150 DATA 112,112,112,202,0,64,10,138,1
   0,138,10,138,138,138,138,74,200,64,10,
   74,240,64,10,74,24,65,10,10,74,84,65
KW 160 DATA 10,10,10,10,74,184,65,10,10,1
   0,10,74,28,66,10,10,10
TY 170 DATA 10,10,10,10,10,10,10,10,138,1
   38,135,134,6,6,10,7,7,76,0,6
PU 200 DATA 0,60,60,126,126,255,255,255,2
   55,231,60.60.255,0,0,0,24,60,60,126,12
   6,0,255,231,195,195,255,203,195
KE 210 DATA 195,200,201,202,203,204,205,2
   06,207,208,240,240,241,242,242,243,244
   ,245,246,24,24,24,24,25,25,26
YG 220 DATA 27,28,84,84,84,84,84,84,84,85
   ,86,184.184,184,184,184,184,184,184,18
   5,200,199,198,197,196,195,194
CN 230 DATA 193,192,240,240,239,238,238,2
   37,236,235,234,24,24,24,24,23,23,22,21
   ,20,84,84,84,84,84,84,84,83,82
VV 240 DATA 184,184,184,184,184,184,184,1
   84,183,195,0,50,80,51,85,55,82,60,83,0
   ,24,60,60,42,0,24,60,126,102,60
JE 250 DATA 42,0,60,126,255,231,126,255,0
   ,42,0,60,60,126,126,255,255,255,255,23
   1,60,60,255,0,0,42,0,24,0,36,42
EU 260 DATA 0,24,60,24,66,102,42,0,60,126
   ,24,255,0,203,195,42,0,24,60,60,126,12
   6,0,255,255,195,195,255,203,195
TN 270 DATA 195,42,160,0,185,0,80,153,79,
   70,185,15,80,153,208,70,200,192,15,208
   ,239,169,63,32,57,81,141,217,69
EU 280 DATA 141,218,69,169,192,141,220,69
   ,32,170,81,169,0,32,248,83,169,100,141
   ,137,6,32,162,82,160,0,32,149
GC 290 DATA 82,169,254,141,0,210,141,135,
   6,162,18,142,134,6,142,150,6,169,40,14
   1,1,210,160,3,169,128,141,4,208
HO 300 DATA 169,194,32,57,81,32,64,81,169
   ,0,141,4,208,169,195,32,57,81,32,64,81
   ,136,208,227,96,141,217,70,141
MV 310 DATA 218,70,96,162,207,173,28,2,20
   8,251,169,2,141,28,2,169,50,141,2,210,
   202,142,3,210,224,192,208,233
LC 320 DATA 96,173,128,6,208,43,173,10,21
   0,205,156,6,144,242,205,157,6,176,12,1
   73,130,6,208,57,160,45,169,53
BL 330 DATA 76,129,81,173,130,6,208,45,16
   0,0,169,8,141,131,6,140,129,6,140,132,
   6,238,128,6,173,130,6,208,24,174
DG 340 DATA 129,6,232,32,197,81,142,129,6
   ,236,131,6,208,184,238,130,6,169,0,141
   ,128,6,96,238,128,6,174,129,6
HB 350 DATA 202,32,197,81,142,129,6,236,1
   32,6,208,8,169,0,141,130,6,141,128,6,9
   6,189,30,80,141,16,6,189,39,80
MU 360 DATA 141,20,6,189,48,80,141,24,6,1
   89,57,80,141,29,6,189,66,80,141,36,6,9
   6,238,133,6,173,133,6,201,15,208
EH 370 DATA 245,169,0,141,133,6,173,132,2
   ,240,19,173,134,6,201,3,240,34,206,134
   ,6,56,173,135,6,233,8,76,27,82
RL 380 DATA 173,134,6,201,18,240,15,238,1
   34,6.24,173.135,6,105,8,141,0,210,141,
```

CONTINUED OVERLEAF

MEAN MOTOR continued

```
   135.6,96,173,120,2,201,11,240
GZ 390 DATA 34,201,7,240,39,32,240,82,173
   ,130.6,208.5,173,128,6,240,231,173,132
   ,6,240.6,206,137,6,76,162,82,238
CK 400 DATA 137,6,76,162,82,206,137,6,206
   ,137,6,76,178,82,238,137,6,238,137,6,7
   6.178,82,173,132,2,208,8,169,129
SN 410 DATA 172,137,6,76,110,82,169,195,1
   60.0,32,57,81,76,149,82,238,136,6,173,
   136,6,201,2,240,7,162,16,160,60
AH 420 DATA 76,142,82,169,0,141,136,6,162
   ,60,160,16,142,197,2,140,198,2,96,152,
   24,105,4,141,6,208,105,20,141
XG 430 DATA 5,208,96,173,137,6,141,0,208,
   141,1,208,24,105,20,141,7,208,96,173,1
   34,6,201,5,176,55,173,130,6,208
GQ 440 DATA 5,173,128,6,240,45,174,140,6,
   142,3,210,172,141,6,185,122,80,141,2,2
   10,200,192,8,208,2,160,0,140,141
ZW 450 DATA 6,202,202,224,162,208,2,162,1
   66,142,140,6,32,48,82,32,48,82,76,162,
   82,169,160,141,3,210,76,162,82
OY 460 DATA 173,146,6,208,53,173,10,210,2
   05,158,6,144,1,96,169,0,141,147,6,32,2
   37,83,169,39,141,145,6,162,0,173
WM 470 DATA 16,6,201,208,208,2,162,86,201
   ,200,208,2,162,122,201,192,208,2,162,1
   64,240,217,142,144,6,142,146,6
GV 480 DATA 238,145,6,173,148,6,201,1,240
   ,25,201,2,240,7,173,10,210,201,128,144
   ,14,169,2,141,148,6,238,144,6
HR 490 DATA 238,144,6,76,96,83,169,1,141,
   148,6,206,144,6,206,144,6,173,6,208,20
   1,1,240,31,173,148,6,201,1,240
VD 500 DATA 12,206,144,6,206,144,6,206,14
   4,6,76,134,83,238,144,6,238,144,6,238,
   144,6,238,144,6,172,145,6,174
CI 510 DATA 147,6,189,130,80,201,42,240,1
   4,153,0,71,189,167,80,153,129,71,232,2
   00,76,140,83,192,98,144,11,169
XE 520 DATA 0,141,146,6,141,148,6,32,248,
   83,192,46,144,5,169,5,141,147,6,192,56
   ,144,5,169,12,141,147,6,192,66
SZ 530 DATA 144,29,192,73,176,10,169,1,32
   ,237,83,233,4,76,230,83,169,21,141,147
   ,6,169,3,32,237,83,233,12,76,230
DF 540 DATA 83,173,144,6,141,2,208,141,3,
   208,96,141,10,208,141,11,208,56,173,14
   4,6,96,160,39,153,0,71,153,129
RF 550 DATA 71,200,192,112,208,245,96,162
   ,2,254,61,67,189,61,67,201,26,208,9,16
   9,16,157,61,67,202,76,8,84,96
NT 560 DATA 104,96,169,16,141,154,6,169,6
   0,141,0,210,169,160,141,3,210,24,173,1
   52,6,105,4,141,152,6,173,28,2
BY 570 DATA 208,251,169,4,141,28,2,206,15
   4,6,173,154,6,141,1,210,208,235,141,14
   6,6,32,248,83,32,247,80,76,218
AL 580 DATA 84,32,204,80,173,28,2,208,12,
   173,134,6,141,28,2,32,90,81,32,116,82,
   173,30,2,208,111,169,1,141,30
NM 590 DATA 2,173,12,208,201,14,240,162,1
   73,4,208,201,7,240,155,238,151,6,173,1
   51,6,201,50,208,19,169,0,141,151
FM 600 DATA 6,238,152,6,173,152,6,205,159
   ,6,144,3,76,28,84,238,149,6,173,149,6,
   201,6,208,22,169,0,141,149.6,206
OU 610 DATA 150,6,173,150,6,208.9,32,6,84
   ,173,134,6,141,150,6,32,228,81,206,139
   ,6,173,139,6,208,20,173,134,6
XT 620 DATA 56,233,2,141,139,6,32,34,82,3
   2,248,82,169,0,141,30,208,32,93,82,173
   ,31,208,201,3,208,5,238,155,6
XF 630 DATA 104,96,76,90,84
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Lissajous'

HARMONICS

by

JIRI NEJEDLY

After ATARI USER magazine was incorporated with PAGE 6 we found that we had inherited a large collection of disks sent in by AU readers. These were mainly the '5-LINERS' and a lot of time was spent trying them all out. Unfortunately, many were very similar in content and most had appeared before, either in PAGE 6 or elsewhere. Where names and addresses were given the material was returned, however, we do not seem to have received all the material during the handover and some people may never see their disks again. PAGE 6 is very sorry about this, if we had the items they would be returned.

Some of the programs I tried out concerned equations, many of them obscure and suitable for interested parties only. They were the type that needed an input from the user and then printed an answer on the screen. Nothing that we could really use in the magazine.

After an hour or two of this I was getting quite despondent until I happened to notice a name that I had last encountered during the time I was studying 'O' level physics. I tried it out and was suddenly struck with the familiarity of having seen this before some years ago.

The program comes from JIRI NEJEDLY from Czechoslovakia. The French physicist name was Lissajous (who died in 1880) and he investigated the superimposition of two harmonic motions. Sounds heavy going but it is, literally, childs play as you will find out.

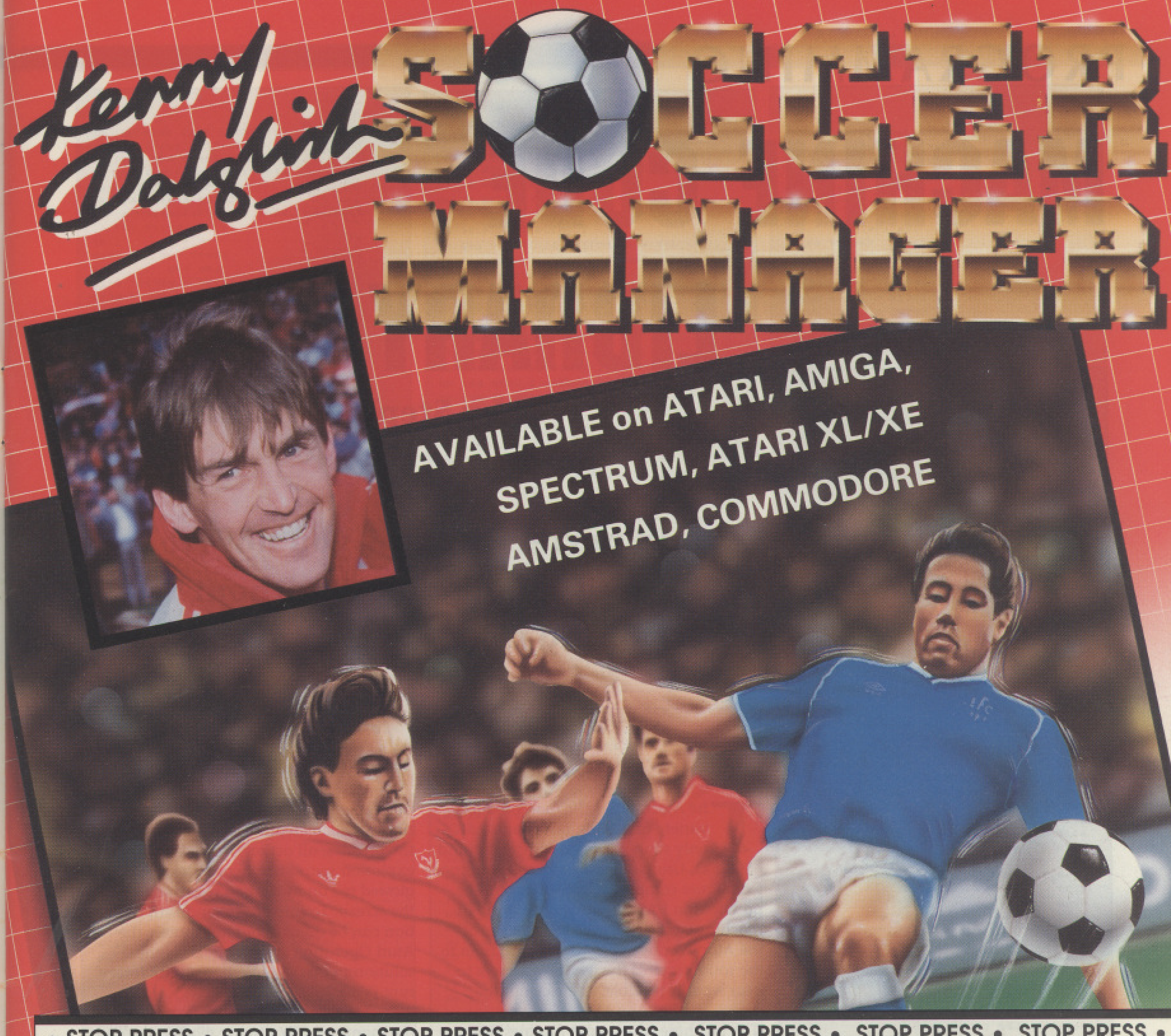
The idea is that you draw a line on a table in one direction, your hand being the first motion. Then, at the same time, you get the table to move in another direction - the second motion. This will result in some weird but, more often, some very pretty patterns. Now, cast your mind back several years and try to remember a childs toy consisting of a drawing board that moved and a pen on a pendulum. For the life of me I cannot remember what the commercial name of it was, but it was a toy typical to the, say, Fisher Price range. If anyone knows the name of this toy would they please contact the magazine and I will let the rest of our readers know in my regular column?

Anyway, enough of all that. What follows is a simple five line program with an obscure (to most of us) equation that comes to life through our ATARI computers. The nice thing about this program is that it does not have dozens of numbers for a machine code routine that will mean absolutely nothing. When you get tired inputing numbers you can always fiddle with the parameters of the program itself.

```
ZA 10 GRAPHICS 8:SETCOLOR 2,6,3:COLOR 5:T
   RAP 20
YV 20 A=0.03:? "FREQUENCY,AMPLITUDE, PHAS
   E":INPUT P,R,F:P=P/10:R=R/10:F=F/10
AT 30 PLOT (160+R*60*SIN(F)),140:I=1
QJ 40 DRAWTO (160+R*60*SIN(P*A*I+F)),(80+
   60*COS(A*I))
ZT 50 I=I+1:GOTO 40
```

PAGE 6 would still like to see small programs like this, not necessarily five liners, but something easy to type in and that is fun or useful. I must warn you now that we have had dozens of directory listers and the like, so scratch your heads and come up with something novel.

Mark Hutchinson


Kenny Dalglish
SOCCER MANAGER
AVAILABLE on ATARI, AMIGA,
SPECTRUM, ATARI XL/XE
AMSTRAD, COMMODORE

MACHINE CODE LIBRARY

by Stephen Williamson

In part 4 we show you how to add sound effects without interrupting the flow of your program

```
10 ;------------------------
20 ;MACHINE CODE LIBRARY
30 ;By Steve Williamson
40 ;for NEW ATARI USER
50 ;PART 4 - SOUND EFFECTS
60 ;4.1 FOOTSTEPS
70 ;------------------------
80        *=  20000
90        .OPT OBJ
0100 SETVBV = 58460
0110 SYSVBV = 58463
0120 AUDF1 = 53760
0130 AUDC1 = 53761
0140 AUDF2 = 53762
0150 AUDC2 = 53763
0160 FLAG =  203
0170 DELAY = 204
0180 PITCH1 = 205
0190 PITCH2 = 206
0200 VOL =    207
0230      LDA #0
0240      STA COUNT
0250      STA COUNT1
0255      LDA #1
0256      STA FLAG
0260      LDA #4
0270      STA DELAY
0280      LDA #230
0290      STA PITCH1
0300      LDA #234
0310      STA PITCH2
0320      LDA #10
0330      STA VOL
0360      JSR SETVBI
0370 LOOP JMP LOOP
0380 SETVBI
0390      LDA #6
0400      LDY #VBROUT&255
0410      LDX #VBROUT/256
0420      JSR SETVBV
0430      RTS
0440 VBROUT
0450      LDA FLAG
0460      CMP #0
0470      BEQ SOUNDOFF
0480      INC COUNT1
0490      LDA COUNT1
0500      CMP DELAY
0510      BNE EXIT
0520      LDA #0
0530      STA COUNT1
0540      INC COUNT
0550      LDA COUNT
0560      CMP #1
0570      BEQ SOUND1
0580      CMP #2
0590      BEQ SOUNDOFF
0600      CMP #3
0610      BEQ SOUND2
0620      CMP #4
0630      BEQ SOUNDOFF
0640      LDA #0
0650      STA COUNT
0660 EXIT JMP SYSVBV
0670 SOUND1
0680      LDA PITCH1
0690      STA AUDF1
0700      CLC
0710      LDA #128
0720      ADC VOL
0730      STA AUDC1
0740      JMP SYSVBV
0750 SOUND2 LDA PITCH2
0760      STA AUDF1
0770      LDA #128
0780      ADC VOL
0790      STA AUDC1
0800      JMP SYSVBV
0810 SOUNDOFF
0820      LDA #0
0830      STA AUDF1
0840      STA AUDC1
0850      JMP SYSVBV
0860 COUNT BRK
0870 COUNT1 BRK
```

The Atari sound chip can produce a variety of sounds, but Atari BASIC only supports it with one command - SOUND. Using a variety of programming techniques complex sound effects can be produced in BASIC but with the speed of machine code, the sound capabilities of the Atari can be explored further. Listen to the soundtrack of the game Warhawk to hear what is possible, or check out the speech synthesis on Mirax Force.

The machine code sound routines this issue are ready made sound effects for use in your machine code or BASIC programs. FOOTSTEPS can be used in games with walking characters. OCEAN would add atmosphere to an adventure game seaside location. EXPLODE is a great for shoot em up games. ALARM can be used in a variety of games to signal danger. Use RANDOM to fill in those silent minutes whilst a BASIC program is initialising. ENGINE simulates an accelerating engine. TUNE demonstrates how to add a music sound track to your programs. No knowledge of machine code is needed to use the BASIC routines that use the machine code data.

The assembly routines were written using the MAC/65 assembler editor cartridge, but should also work with the Atari Assembler/Editor and can easily be adapted to most assemblers. The sound effects are flexible. Speed, volume and pitch can be altered to suit your needs.

PROBLEMS WITH SOUND

One of the first machine code games that I wrote for the Atari computer, a shoot 'em up game, suffered from a problem. Every time an alien creature was hit by one of the missiles, all action stopped whilst an explosion sound was heard, the alien glowed red and was then removed from the screen. To integrate sound with animation can be difficult but fortunately the Atari Operating System offers a simple solution to this - the Vertical Blank Interrupt (VBI).

When the electron beam that refreshes the monitor or TV display reaches the end of the display it switches off before returning to the top of the screen and this fraction of time is known as the Vertical Blank. The Atari then performs some housekeeping tasks - updating system timers etc. Even though the Vertical Blank takes place every 1/50th of a second (1/60th on the USA TV system), you can instruct the Operating System to jump to a short machine code routine of your own after it has performed these tasks. This is known as a Vertical Blank Interrupt (VBI). The effect is similar to multi-tasking. Your custom VBI routine runs independently of the main program but the main program can interact with the VBI routine by altering parameters that the VBI routine uses. This technique is perfect for sound effects. Commercial programs that play music whilst a game is playing use the VBI technique.

It is beyond the scope of this article to go into the details of the Atari sound chip and the VBI process. The book DE RE ATARI by Chris Crawford is recommended reading if you want more information on Atari sound and VBI's.

```
10 ;-------------------------
20 ;MACHINE CODE LIBRARY
30 ;By Steve Williamson
40 ;for NEW ATARI USER
50 ;PART 4 - SOUND EFFECTS
60 ;4.2 FOOTSTEPS
70 ;Call from BASIC with:
80 ;A=USR(ADR(FSTEP$),ADDR,FLAG,DELAY,PIT
   CH1,PITCH2,VOL)
90 ;-------------------------
0100      *=  20000
0110      .OPT OBJ
0120 SETVBV = 58460
0130 SYSVBV = 58463
0140 AUDF1 = 53760
0150 AUDC1 = 53761
0160 AUDF2 = 53762
0170 AUDC2 = 53763
0200 FLAG =  203
0210 DELAY = 204
0220 PITCH1 = 205
0230 PITCH2 = 206
0240 PITCH2 = 210
0250 HIADR = 208
0260 LOADR = 209
0270      PLA
0280      LDA #0
0290      STA COUNT
0300      STA COUNT1
0310      PLA
0320      STA HIADR
0325      PLA
0330      STA LOADR
0340      PLA
0350      PLA
0360      STA FLAG
0370      PLA
0380      PLA
0390      STA DELAY
0400      PLA
0410      PLA
0420      STA PITCH1
0430      PLA
0440      PLA
0450      STA PITCH2
0460      PLA
0470      PLA
0480      STA VOL
0500 SETVBI
0510      LDA #6
0520      LDY LOADR
0530      LDX HIADR
0540      JSR SETVBV
0550      RTS
0560 VBROUT
0570      LDA FLAG
0580      CMP #0
0590      BEQ SOUNDOFF
0600      INC COUNT1
0610      LDA COUNT1
0620      CMP DELAY
0630      BNE EXIT
0640      LDA #0
0650      STA COUNT1
0660      INC COUNT
0670      LDA COUNT
0680      CMP #1
0690      BEQ SOUND1
0700      CMP #2
0710      BEQ SOUNDOFF
0720      CMP #3
0730      BEQ SOUND2
0740      CMP #4
0750      BEQ SOUNDOFF
0760      LDA #0
0770      STA COUNT
0780 EXIT JMP SYSVBV
0790 SOUND1
0800      LDA PITCH1
0810      STA AUDF1
0820      CLC
0830      LDA #128
0840      ADC VOL
0850      STA AUDC1
0860      JMP SYSVBV
0870 SOUND2 LDA PITCH2
0880      STA AUDF1
0890      LDA #128
0900      ADC VOL
0910      STA AUDC1
0920      JMP SYSVBV
0930 SOUNDOFF
0940      LDA #0
0950      STA AUDF1
0960      STA AUDC1
0970      JMP SYSVBV
0980 COUNT BRK
0990 COUNT1 BRK
```

```
LX 10 REM -----------------------
NM 20 REM MACHINE CODE LIBRARY
MP 30 REM by Stephen Williamson
KK 40 REM for NEW ATARI USER
PF 50 REM PART 4 - SOUND EFFECTS
TS 60 REM 4.3 FOOTSTEPS
MF 70 REM -----------------------
QC 80 GOSUB 140
SI 90 FLAG=1:DELAY=2
SU 100 PITCH1=230:PITCH2=234:VOL=10
RC 110 A=USR(ADR(FSTEP$),ADDR,FLAG,DELAY,
   PITCH1,PITCH2,VOL)
TL 120 STOP
OU 130 REM LOAD MC DATA
SW 140 DIM FSTEP$(140):RESTORE 200
QY 150 REM LOAD MC DATA
AT 160 FOR I=1 TO 140
OU 170 READ A:FSTEP$(I,I)=CHR$(A)
UH 180 NEXT I:ADDR=ADR(FSTEP$)+45
ZP 190 RETURN
TR 200 DATA 104,169,0,141,170,78,141,171,
   78,104,133,208,104,133,209,104,104,133
   ,203,104
KU 210 DATA 104,133,204,104,104,133,205,1
   04,104,133,206,104,104,133,207,169,6,1
   64,209,166
EG 220 DATA 208,32,92,228,96,165,203,201,
   0,240,76,238,171,78,173,171,78,197,204
   ,208
OW 230 DATA 32,169,0,141,171,78,238,170,7
   8,173,170,78,201,1,240,20,201,2,240,47
PS 240 DATA 201,3,240,28,201,4,240,39,169
   ,0,141,170,78,76,95,228,165,205,141,0
RK 250 DATA 210,24,169,128,101,207,141,1,
   210,76,95,228,165,206,141,0,210,169,12
   8,101
NM 260 DATA 207,141,1,210,76,95,228,169,0
   ,141,0,210,141,1,210,76,95,228,0,0
```

```
LX 10 REM -----------------------
NM 20 REM MACHINE CODE LIBRARY
MP 30 REM by Stephen Williamson
KK 40 REM for NEW ATARI USER
PF 50 REM PART 4 - SOUND EFFECTS
IF 60 REM 4.5 OCEAN
MF 70 REM -----------------------
QC 80 GOSUB 140
WG 90 FLAG=1:DELAY=8
YP 100 PITCH1=10:PITCH2=0:VOL=10
YK 110 A=USR(ADR(OCEAN$),ADDR,FLAG,DELAY,
   PITCH1,PITCH2,VOL)
TL 120 STOP
OU 130 REM LOAD MC DATA
KC 140 DIM OCEAN$(145):RESTORE 200
QY 150 REM LOAD MC DATA
CD 160 FOR I=1 TO 142
ZI 170 READ A:OCEAN$(I,I)=CHR$(A)
YP 180 NEXT I:ADDR=ADR(OCEAN$)+48
ZP 190 RETURN
BS 200 DATA 104,169,0,141,172,78,141,173,
   78,141,171,78,104,133,208,104,133,209,
   104,104
BT 210 DATA 133,203,104,104,133,204,104,1
   04,133,205,104,104,133,206,104,104,133
   ,207,169,6
AI 220 DATA 164,209,166,208,32,92,228,96,
   165,203,201,0,240,61,238,173,78,173,17
   3,78
SE 230 DATA 197,204,208,16,169,0,141,173,
   78,173,171,78,201,1,240,23,201,0,240,3
UP 240 DATA 76,95,228,198,205,165,205,201
   ,0,208,35,169,1,141,171,78,76,95,228,2
   30
FH 250 DATA 205,165,205,201,10,208,19,169
   ,0,141,171,78,76,95,228,169,0,141,0,21
   0
SA 260 DATA 141,1,210,76,95,228,165,205,1
   41,0,210,169,136,141,1,210,76,95,228,0
   ,0,0
```

```
10 :    ----------------
20 :MACHINE CODE LIBRARY
30 :By Steve Williamson
40 ;for NEW ATARI USER
50 :PART 4 - SOUND EFFECTS
60 ;4.4 OCEAN
70 :-------------------------
80        *=  20000
90        .OPT OBJ
0100 SETVBV = 58460
0110 SYSVBV = 58463
0120 AUDF1 = 53760
0130 AUDC1 = 53761
0140 AUDF2 = 53762
0150 AUDC2 = 53763
0160 FLAG =  203
0170 DELAY = 204
0180 PITCH1 = 205
0190 PITCH2 = 206
0200 VOL =   207
0230      LDA #0
0240      STA COUNT
0250      STA COUNT1
0260      LDA #8
0270      STA DELAY
0280      LDA #10
0290      STA PITCH1
0300      LDA #0
0310      STA PITCH2
0320      LDA #10
0330      STA VOL
0360      JSR SETVBI
0370 LOOP JMP LOOP
0380 SETVBI
0390      LDA #6
0400      LDY #VBROUT&255
0410      LDX #VBROUT/256
0420      JSR SETVBV
0430      RTS
0435 VBROUT
0440      LDA FLAG
0450      CMP #0
0460      BEQ SOUNDOFF
0470      INC COUNT1
0480      LDA COUNT1
0490      CMP DELAY
0500      BNE EXIT
0510      LDA #0
0520      STA COUNT1
0530      LDA INCFLAG
0540      CMP #1
0550      BEQ SOUNDUP
0560      CMP #0
0570      BEQ SOUNDDOWN
0580 EXIT JMP SYSVBV
0590 SOUNDDOWN
0600      DEC PITCH1
0610      LDA PITCH1
0620      CMP #0
0630      BNE PLAY
0640      LDA #1
0650      STA INCFLAG
0660      JMP SYSVBV
0670 SOUNDUP
0680      INC PITCH1
0690      LDA PITCH1
0700      CMP #10
0710      BNE PLAY
0720      LDA #0
0730      STA INCFLAG
0740      JMP SYSVBV
0750 SOUNDOFF
0760      LDA #0
0770      STA AUDF1
0780      STA AUDC1
0790      JMP SYSVBV
0800 PLAY
0810      LDA PITCH1
0820      STA AUDF1
0830      LDA #136
0840      STA AUDC1
0850      JMP SYSVBV
0860 INCFLAG BRK
0870 COUNT BRK
0880 COUNT1 BRK
```

Above - Listing 2
Centre top - Listing 3
Right - Listing 4
Centre bottom - Listing 5

SETTING UP A VBI

In order for a VBI to interact with the main program, registers must be set up for the routine to use. If you look at listing 4.1 you will see that 4 registers have been set up at zero page locations. FLAG (203) is used to turn the sound effect on or off (1=on, 0=off). DELAY(204) affects the pace of the sound. PITCH1(205) and PITCH2(206) are used to change the pitch of the sound, and VOL(207) controls the volume.

To set the VBI is simple. The accumulator is loaded with a value of 6, Y is loaded with the Lo-byte address of the VBI routine and X loaded with the Hi-byte address of the VBI routine. A JSR command to SETVBV (58460) then informs the operating system to interrupt the vertical blank process and jump to the routine every vertical blank. Note that a VBI routine does not use the instruction RTS to exit but JMP SYSVBV (58463). This has the effect of restoring the values of the A,X and Y registers of the main program. *continued overleaf*

```
10 ;-----------------------
20 ;MACHINE CODE LIBRARY
30 ;By Steve Williamson
40 ;for NEW ATARI USER
50 ;PART 4 - SOUND EFFECTS
60 ;4.6 EXPLODE
70 ;-----------------------
80          *=  20000
90           .OPT OBJ
0100 SETVBV = 58460
0110 SYSVBV = 58463
0120 AUDF1 = 53760
0130 AUDC1 = 53761
0140 AUDF2 = 53762
0150 AUDC2 = 53763
0160 FLAG =  203
0170 DELAY = 204
0180 PITCH1 = 205
0190 PITCH2 = 206
0200 VOL =    207
0210      LDA #0
0220      STA COUNT
0230      STA COUNT1
0240      LDA #1
0250      STA FLAG
0260      LDA #14
0270      STA DELAY
0280      LDA #64
0290      STA PITCH1
0300      LDA #0
0310      STA PITCH2
0320      LDA #10
0330      STA VOL
0340      JSR SETVBI
0350 LOOP JMP LOOP
0360 SETVBI
0370      LDA #6
0380      LDY #VBROUT&255
0390      LDX #VBROUT/256
0400      JSR SETVBV
0410      RTS
0420 VBROUT
0430      LDA FLAG
0440      CMP #0
0450      BEQ SOUNDOFF
0460      INC COUNT
0470      LDA COUNT
0480      CMP DELAY
0490      BNE EXIT
0500      LDA #0
0510      STA COUNT
0520      LDA PITCH1
0530      STA AUDF1
0540      CLC
0550      LDA #128
0560      ADC VOL
0570      STA AUDC1
0580      DEC VOL
0590      LDA VOL
0600      CMP #0
0610      BNE EXIT
0620      LDA #0
0630      STA FLAG
0640 EXIT JMP SYSVBV
0650 SOUNDOFF
0660      LDA #0
0670      STA AUDF1
0680      STA AUDC1
0690      JMP SYSVBV
0700 COUNT BRK
0710 COUNT1 BRK
```

```
LX 10 REM ----------------------
NM 20 REM MACHINE CODE LIBRARY
MP 30 REM by Stephen Williamson
KK 40 REM for NEW ATARI USER
PF 50 REM PART 4 - SOUND EFFECTS
PZ 60 REM 4.7 EXPLODE
MF 70 REM ----------------------
OC 80 GOSUB 140
BR 90 FLAG=1:DELAY=14
CX 100 PITCH1=64:PITCH2=0:VOL=10
CF 110 A=USR(ADR(EXPLODE$),ADDR,FLAG,DELA
   Y,PITCH1,PITCH2,VOL)
TL 120 STOP
QU 130 REM LOAD MC DATA
VF 140 DIM EXPLODE$(120):RESTORE 200
QY 150 REM LOAD MC DATA
ZL 160 FOR I=1 TO 120
NO 170 READ A:EXPLODE$(I,I)=CHR$(A)
AQ 180 NEXT I:ADDR=ADR(EXPLODE$)+45
ZP 190 RETURN
BG 200 DATA 104,169,0,141,137,78,141,138,
   78,104,133,208,104,133,209,104,104,133
   ,203,104
XU 210 DATA 104,133,204,104,104,133,205,1
   04,104,133,206,104,104,133,207,169,6,1
   64,209,166
DF 220 DATA 208,32,92,228,96,165,203,201,
   0,240,43,238,137,78,173,137,78,197,204
   ,208
VO 230 DATA 30,169,0,141,137,78,165,205,1
   41,0,210,24,169,128,101,207,141,1,210,
   198
KV 240 DATA 207,165,207,201,0,208,4,169,0
   ,133,203,76,95,228,169,0,141,0,210,141
KA 250 DATA 1,210,76,95,228,0,0,0,0,0,0,0
   ,0,0,0,0,0,0,0,0
```

```
LX 10 REM ----------------------
NM 20 REM MACHINE CODE LIBRARY
MP 30 REM by Stephen Williamson
KK 40 REM for NEW ATARI USER
PF 50 REM PART 4 - SOUND EFFECTS
OV 60 REM 4.9 ALARM
MF 70 REM ----------------------
OC 80 GOSUB 140
BR 90 FLAG=1:DELAY=14
LA 100 PITCH1=128:PITCH2=64:VOL=10
EH 110 A=USR(ADR(ALARM$),ADDR,FLAG,DELAY,
   PITCH1,PITCH2,VOL)
TL 120 STOP
QU 130 REM LOAD MC DATA
JP 140 DIM ALARM$(120):RESTORE 200
QY 150 REM LOAD MC DATA
ZL 160 FOR I=1 TO 120
EK 170 READ A:ALARM$(I,I)=CHR$(A)
CQ 180 NEXT I:ADDR=ADR(ALARM$)+45
ZP 190 RETURN
OZ 200 DATA 104,169,0,141,150,78,141,151,
   78,104,133,208,104,133,209,104,104,133
   ,203,104
XU 210 DATA 104,133,204,104,104,133,205,1
   04,104,133,206,104,104,133,207,169,6,1
   64,209,166
NF 220 DATA 208,32,92,228,96,165,203,201,
   0,240,56,238,150,78,173,150,78,197,204
   ,208
ZS 230 DATA 16,169,0,141,150,78,173,151,7
   8,201,0,240,7,201,1,240,19,76,95,228
YL 240 DATA 169,234,141,1,210,165,205,141
   ,0,210,238,151,78,76,95,228,165,206,14
   1,0
BD 250 DATA 210,206,151,78,76,95,228,169,
   0,141,0,210,141,1,210,76,95,228,0,0
```

```
10 ;-----------------------
20 ;MACHINE CODE LIBRARY
30 ;By Steve Williamson
40 ;for NEW ATARI USER
50 ;PART 4 - SOUND EFFECTS
60 ;4.8 ALARM
70 ;-----------------------
80          *=  20000
90           .OPT OBJ
0100 SETVBV = 58460
0110 SYSVBV = 58463
0120 AUDF1 = 53760
0130 AUDC1 = 53761
0140 AUDF2 = 53762
0150 AUDC2 = 53763
0160 FLAG =  203
0170 DELAY = 204
0180 PITCH1 = 205
0190 PITCH2 = 206
0200 VOL =    207
0210      LDA #0
0220      STA COUNT
0230      STA COUNT1
0240      LDA #1
0250      STA FLAG
0260      LDA #14
0270      STA DELAY
0280      LDA #128
0290      STA PITCH1
0300      LDA #64
0310      STA PITCH2
0320      LDA #10
0330      STA VOL
0340      JSR SETVBI
0350 LOOP JMP LOOP
0360 SETVBI
0370      LDA #6
0380      LDY #VBROUT&255
0390      LDX #VBROUT/256
0400      JSR SETVBV
0410      RTS
0420 VBROUT LDA FLAG
0430      CMP #0
0440      BEQ SOUNDOFF
0450      INC COUNT
0460      LDA COUNT
0470      CMP DELAY
0480      BNE EXIT
0490      LDA #0
0500      STA COUNT
0510      LDA COUNT1
0520      CMP #0
0530      BEQ SOUND1
0540      CMP #1
0550      BEQ SOUND2
0560 EXIT JMP SYSVBV
0570 SOUND1
0580      LDA #234
0590      STA AUDC1
0600      LDA PITCH1
0610      STA AUDF1
0620      INC COUNT1
0630      JMP SYSVBV
0640 SOUND2
0650      LDA PITCH2
0660      STA AUDF1
0670      DEC COUNT1
0680      JMP SYSVBV
0690 SOUNDOFF LDA #0
0700      STA AUDF1
0710      STA AUDC1
0720      JMP SYSVBV
0730 COUNT BRK
0740 COUNT1 BRK
```

Above - Listing 6
Centre top - Listing 7
Centre bottom Listing 9
Right - Listing 8

EXPLOSIONS .. GUNSHOTS ...

USING THE ROUTINES

The FOOTSTEPS VBI routine uses a counter to access one of 3 operations - turn the sound chip on using the value contained in the register PITCH 1, turn voice 1 off, then sound the PITCH2 value. Normally this operation would occur every Vertical Blank (every 1/50 second), but the DELAY register is used to slow things down by exiting the routine until the value of a counter (COUNT1) is equal to the value found in the register DELAY.

The routine will run as it is stands. When used within a large program use it as a subroutine. The simplest way of doing this is to use a JSR instruction and put a RTS instruction at line 370 to return to the main program. Try altering the values loaded into the registers (lines 230 to 330) and see what happens. If the FLAG is set to a value of zero then the sound is turned off. This means that voices 1 or 2 will be switched off every Vertical Blank. If you want to also include non-VBI sound effects in your program then use voices 3 and 4 or cancel the VBI by using a similar set VBI routine as in lines 380 to 430 of listing 1 but make the VBI routine simply JMP SYSVBV to cancel the effect of the sound VBI.

USING WITH BASIC PROGRAMS

Listing 4.2 is the source code for the machine code data to be used from within a BASIC program. The first part (lines 270 to 480) alter the registers by passing parameters from the BASIC program. This maintains the flexibility of the machine code routine.

Listing 4.3 is a BASIC routine that loads the machine code data to a string variable. The code is relocatable and will not clash with any other memory area that your BASIC program uses. This means that the actual address of the Vertical Blank

```
10 ;------------------------
20 ;MACHINE CODE LIBRARY
30 ;By Steve Williamson
40 ;for NEW ATARI USER
50 ;PART 4 - SOUND EFFECTS
60 ;4.10 RANDOM
70 ;------------------------
80        *=  20000
90        .OPT OBJ
0100 SETVBV = 58460
0110 SYSVBV = 58463
0120 AUDF1 = 53760
0130 AUDC1 = 53761
0140 AUDF2 = 53762
0150 AUDC2 = 53763
0160 FLAG =  203
0170 DELAY = 204
0180 PITCH1 = 205
0190 PITCH2 = 206
0200 VOL =   207
0210      LDA #0
0220      STA COUNT
0230      STA COUNT1
0240      LDA #1
0250      STA FLAG
0260      LDA #4
0270      STA DELAY
0280      LDA #0
0290      STA PITCH1
0300      LDA #0
0310      STA PITCH2
0320      LDA #10
0330      STA VOL
0340      JSR SETVBI
0350 LOOP JMP LOOP
0360 SETVBI
0370      LDA #6
0380      LDY #VBROUT&255
0390      LDX #VBROUT/256
0400      JSR SETVBV
0410      RTS
0420 VBROUT LDA FLAG
0430      CMP #0
0440      BEQ SOUNDOFF
0450      INC COUNT
0460      LDA COUNT
0470      CMP DELAY
0480      BNE EXIT
0490      LDA #0
0500      STA COUNT
0510      LDA 53770
0520      STA AUDF1
0530      LDA #234
0540      STA AUDC1
0550 EXIT JMP SYSVBV
0560 SOUNDOFF
0570      LDA #0
0580      STA AUDF1
0590      STA AUDC1
0600      JMP SYSVBV
0610 COUNT BRK
0620 COUNT1 BRK
```

```
LX 10 REM ------------------------
NM 20 REM MACHINE CODE LIBRARY
MP 30 REM by Stephen Williamson
KK 40 REM for NEW ATARI USER
PF 50 REM PART 4 - SOUND EFFECTS
OS 60 REM 4.11 RANDOM BAS
MF 70 REM ------------------------
OC 80 GOSUB 140
TQ 90 FLAG=1:DELAY=4
LT 100 PITCH1=0:PITCH2=0:VOL=10
NI 110 A=USR(ADR(RAND$),ADDR,FLAG,DELAY,P
   ITCH1,PITCH2,VOL)
TL 120 STOP
OU 130 REM LOAD MC DATA
IG 140 DIM RAND$(100):RESTORE 200
OY 150 REM LOAD MC DATA
YD 160 FOR I=1 TO 100
GO 170 READ A:RAND$(I,I)=CHR$(A)
AY 180 NEXT I:ADDR=ADR(RAND$)+45
ZP 190 RETURN
PF 200 DATA 104,169,0,141,123,78,141,124,
   78,104,133,208,104,133,209,104,104,133
   ,203,104
XU 210 DATA 104,133,204,104,104,133,205,1
   04,104,133,206,104,104,133,207,169,6,1
   64,209,166
NO 220 DATA 208,32,92,228,96,165,203,201,
   0,240,29,238,123,78,173,123,78,197,204
   ,208
UK 230 DATA 16,169,0,141,123,78,173,10,21
   0,141,0,210,169,234,141,1,210,76,95,22
   8
CJ 240 DATA 169,0,141,0,210,141,1,210,76,
   95,228,0,0,0,0,0,0,0,0,0
```

```
LX 10 REM ------------------------
NM 20 REM MACHINE CODE LIBRARY
MP 30 REM by Stephen Williamson
KK 40 REM for NEW ATARI USER
PF 50 REM PART 4 - SOUND EFFECTS
UA 60 REM 4.13 ENGINE
MF 70 REM ------------------------
OC 80 GOSUB 140
WG 90 FLAG=1:DELAY=8
QM 100 REM
NK 110 A=USR(ADR(ENGINE$),ADDR,FLAG,DELAY
   )
TL 120 STOP
QU 130 REM LOAD MC DATA
LM 140 DIM ENGINE$(140):RESTORE 200
OY 150 REM LOAD MC DATA
AT 160 FOR I=1 TO 140
CR 170 READ A:ENGINE$(I,I)=CHR$(A)
CV 180 NEXT I:ADDR=ADR(ENGINE$)+34
ZP 190 RETURN
FQ 200 DATA 104,169,0,141,165,78,104,133,
   208,104,133,209,104,104,133,203,104,10
   4,133,204
EM 210 DATA 169,164,133,205,169,6,164,209
   ,166,208,32,92,228,96,165,203,201,0,24
   0,82
NM 220 DATA 238,165,78,173,165,78,197,204
   ,208,69,169,0,141,165,78,173,120,2,201
   ,14
AU 230 DATA 240,8,201,13,240,19,201,15,24
   0,30,198,205,165,205,201,64,208,22,169
   ,65
ZL 240 DATA 133,205,76,95,228,230,205,165
   ,205,201,165,208,7,169,164,133,205,76,
   95,228
WB 250 DATA 165,205,141,0,210,56,233,1,14
   1,2,210,169,106,141,1,210,141,3,210,76
VA 260 DATA 95,228,169,0,141,0,210,141,1,
   210,76,95,228,0,0,0,0,0,0,0
```

```
10 ; ------------------------
20 ;MACHINE CODE LIBRARY
30 ;by Steve Williamson
40 ;for NEW ATARI USER
50 ;PART 4 - SOUND EFFECTS
60 ;4.12 ENGINE
70 ; ------------------------
80        *= 20000
90        .OPT OBJ
0100 SETVBV = 58460
0110 SYSVBV = 58463
0120 AUDF1 = 53760
0130 AUDC1 = 53761
0140 AUDF1 = 53762
0150 AUDC2 = 53763
0160 FLAG = 203
0170 DELAY = 204
0180 PITCH1 = 205
0190 STICK0 = 632
0200      LDA #0
0210      STA COUNT
0220      LDA #1
0230      STA FLAG
0240      LDA #0
0250      STA DELAY
0260      LDA #164
0270      STA PITCH1
0280      JSR SETVBI
0290 LOOP JMP LOOP
0300 SETVBI
0310      LDA #6
0320      LDY #VBROUT&255
0330      LDX #VBROUT/256
0340      JSR SETVBV
0350      RTS
0360 VBROUT LDA FLAG
0370      CMP #0
0380      BEQ SOUNDOFF
0390      INC COUNT
0400      LDA COUNT
0410      CMP DELAY
0420      BNE EXIT
0430      LDA #0
0440      STA COUNT
0450      LDA STICK0
0460      CMP #14
0470      BEQ ACCELERATE
0480      CMP #13
0490      BEQ BRAKE
0500      CMP #15
0510      BEQ SOUND
0520 ACCELERATE
0530      DEC PITCH1
0540      LDA PITCH1
0550      CMP #64
0560      BNE SOUND
0570      LDA #65
0580      STA PITCH1
0590      JMP SYSVBV
0600 BRAKE
0610      INC PITCH1
0620      LDA PITCH1
0630      CMP #165
0640      BNE SOUND
0650      LDA #164
0660      STA PITCH1
0670      JMP SYSVBV
0680 SOUND
0690      LDA PITCH1
0700      STA AUDF1
0710      SEC
0720      SBC #1
0730      STA AUDF2
0740      LDA #106
0750      STA AUDC1
0760      STA AUDC2
0770 EXIT JMP SYSVBV
0780 SOUNDOFF LDA #0
0790      STA AUDF1
0800      STA AUDC1
0810      JMP SYSVBV
0820 COUNT BRK
```

Above - Listing 10
Centre top - Listing 11
Centre bottom - Listing 13
Right - Listing 12

routines will change according to where the string FSTEP$ is located in the variable table. Line 180 of the BASIC listing calculates this and assigns it the variable ADDR which is then passed to the machine code routine line line 110. Note that when the program stops at line 120, the sound effect still continues, demonstrating that the VBI routine is independent of the BASIC program.

To use this and the other sound effects routines in your own programs, it can be switched on or off, once the machine code routine has been set up, by altering the value of the vàriable FLAG (1=on, 0=off) and repeating the machine code call in line 110. Try altering the values of PITCH1, PITCH2, DELAY and VOLUME as well and hear what happens. Normally the volume should be between 2 and 14 - any other value will give strange effects.

TYPING AND SAVING

If typing in the routines, save them to tape or disk first. Any mistake in the DATA statements can cause the system to crash.

The programming techniques used to create the OCEAN, EXPLODE, RANDOM and ALARM routines are similar to the Footsteps effect. I have not included the source code for use with BASIC as they use the same method found in listing 4.2.

Experiment with the routines. If you set a low value for DELAY in the explode sound effect it will sound like a gunshot.

The engine sound effect (Listing 4.12 and 4.13) uses a joystick to alter the pitch of the sound. This has obvious uses in a car or motorbike game.

SOME MUSIC

The final routines (4.14, 4.15) show how to add a simple tune using two voices. The data for the tune is found in lines 760 to 790 in the machine code listing and lines 310 to 360 in the BASIC routines. Each note of the musical scale can be represented by a value between 0 and 255 (see your Atari manual for a list of these). To vary the different length of time that notes

MACHINE CODE

SOUND EFFECTS

```
10 ;-----------------------
20 ;MACHINE CODE LIBRARY
30 ;By Steve Williamson
40 ;for NEW ATARI USER
50 ;PART 4 - SOUND EFFECTS
60 ;4.14 TUNE.LST
70 ;-----------------------
80        *=  20000
90        .OPT OBJ
0100 SETVBV = 58460
0110 SYSVBV = 58463
0120 AUDF1 = 53760
0130 AUDC1 = 53761
0140 AUDF2 = 53762
0150 AUDC2 = 53763
0160 FLAG =  203
0170 DELAY = 204
0180 PITCH1 = 205
0190 PITCH2 = 206
0200 VOL =   207
0210 STOPFLAG = 208
0220      LDA #0
0230      STA COUNT
0240      STA NOTECOUNT
0250      LDA #44
0260      STA STOPFLAG
0270      LDA #6
0280      STA DELAY
0290      LDA #1
0300      STA FLAG
0310      LDA #6
0320      LDY #VBROUT&255
0330      LDX #VBROUT/256
0340      JSR SETVBV
0350 STOP JMP STOP
0360 VBROUT
0370      LDA FLAG
0380      CMP #0
0390      BEQ SOUNDOFF
0400      INC COUNT
0410      LDA COUNT
0420      CMP DELAY
0430      BNE EXIT
0440      LDA #0
0450      STA COUNT
0460      LDX NOTECOUNT
0470      LDA TUNEDATA,X
0480      STA AUDF1
0490      LDA TUNEDATA1,X
0500      STA AUDF2
0510      LDA #234
0520      STA AUDC1
0530      LDA #232
0540      STA AUDC2
0550      INC NOTECOUNT
0560      LDA NOTECOUNT
0570      CMP STOPFLAG
0580      BNE EXIT
0590      LDA #0
0600      STA NOTECOUNT
0610 EXIT JMP SYSVBV
0620 SOUNDOFF
0630      LDA #0
0640      STA AUDF1
0650      STA AUDC1
0660      STA AUDF2
0670      STA AUDC2
0680      STA COUNT1
0690      JMP SYSVBV
0700 COUNT BRK
0710 NOTECOUNT BRK
0720 COUNT1 BRK
0730 ;-------------
0740 ;DATA FOR TUNE
0750 ;-------------
0760 TUNEDATA .BYTE 0,81,81,81,96,96,96,8
   1,81,81,96,96,96,121,121,121,108,109,9
   6,91,91,91
0770      .BYTE 108,108,108,81,81,81,96,96
   ,96,121,121,121,121,121,121,121,121,12
   1,121,0,0,0,0
0780 TUNEDATA1 .BYTE 0,80,80,80,95,95,95,
   80,80,80,95,95,95,120,120,120,107,108,
   95,90,90,90
0790      .BYTE 107,107,107,80,80,80,95,95
   ,95,120,120,120,120,120,120,120,120,12
   0,120,120,0,0,0
```

```
LX 10 REM -----------------------
NM 20 REM MACHINE CODE LIBRARY
MP 30 REM by Stephen Williamson
KK 40 REM for NEW ATARI USER
PF 50 REM PART 4 - SOUND EFFECTS
MY 60 REM 4.15 TUNE
MF 70 REM -----------------------
TP 80 TUNE0=1536:TUNE1=1536+120:SFLAG=44:
   GOSUB 130
UY 90 FLAG=1:DELAY=6
RP 100 A=USR(ADR(TUNE$),ADDR,FLAG,DELAY,S
   FLAG)
TJ 110 STOP
RS 120 REM LOAD MC DATA
KY 130 DIM TUNE$(140):RESTORE 240
OW 140 REM LOAD MC DATA
AR 150 FOR I=1 TO 140
SB 160 READ A:TUNE$(I,I)=CHR$(A)
VM 170 NEXT I:ADDR=ADR(TUNE$)+37
TN 180 RESTORE 320
YT 190 FOR I=0 TO SFLAG
AF 200 READ A:POKE TUNE0+I,A:NEXT I
YE 210 FOR I=0 TO SFLAG
BE 220 READ A:POKE TUNE1+I,A:NEXT I
ZE 230 RETURN
JE 240 DATA 104,169,0,141,153,78,141,154,
   78,104,133,205,104,133,206,104,104,133
   ,203,104
FJ 250 DATA 104,133,204,104,104,133,208,1
   69,6,164,206,166,205,32,92,228,96,165,
   203,201
LC 260 DATA 0,240,58,238,153,78,173,153,7
   8,197,204,208,45,169,0,141,153,78,174,
   154
IQ 270 DATA 78,189,0,6,141,0,210,189,120,
   6,141,2,210,169,234,141,1,210,169,232
WH 280 DATA 141,3,210,238,154,78,173,154,
   78,197,208,208,5,169,0,141,154,78,76,9
   5
FN 290 DATA 228,169,0,141,0,210,141,1,210
   ,141,2,210,141,3,210,141,155,78,76,95
VJ 300 DATA 228,0,0,0,0,0,0,0,0,0,0,0,0,0
   ,0,0,0,0,0,0
JM 310 REM TUNE0 DATA
ZS 320 DATA 0,81,81,81,96,96,96,81,81,81,
   96,96,96,121,121,121,108,109,96,91,91,
   91
DF 330 DATA 108,108,108,81,81,81,96,96,96
   ,121,121,121,121,121,121,121,121,121,1
   21,0,0,0,0
KF 340 REM TUNE1 DATA
PW 350 DATA 0,80,80,80,95,95,95,80,80,80,
   95,95,95,120,120,120,107,108,95,90,90,
   90
QY 360 DATA 107,107,107,80,80,80,95,95,95
   ,120,120,120,120,120,120,120,120,120,1
   20,120,0,0,0
```

Above - Listing 14

Right - Listing 15

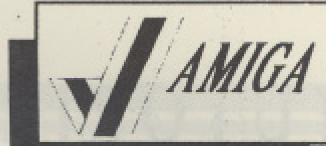
are sounded the data for each note can be repeated. A value of zero means silence. I am not a musician so the tune demonstrated is just a simple nursery rhyme, but the technique can be adapted for more professional sounding music.

The routine can accept your own compositions using two part harmony by altering the data statements. The machine code only version can accept up to 256 notes for each voice, and the data for use within BASIC can use up to 128 notes for each voice. The value of the register STOPFLAG or the variable SFLAG must be altered to the required number of notes. The BASIC version loads the note data into Page 6 (addresses 1536 to 1792) which is normally not used by BASIC.

These programs show how sound effects can be created without much effort. If you are a machine code programmer try expanding the routines - you may end up with your Atari sounding like Pink Floyd or Tangerine Dream!





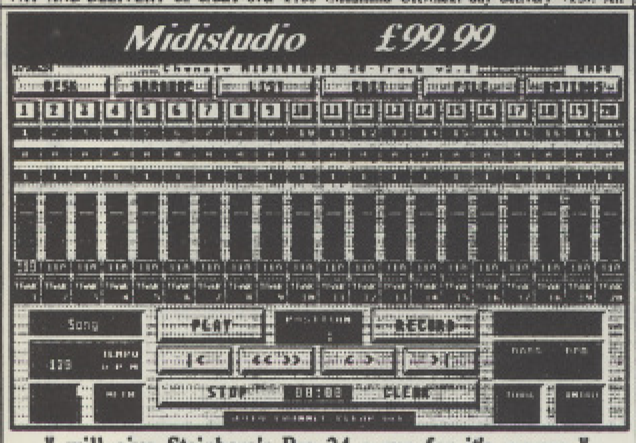


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ST WORLD March 89

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THE CASSETTE DATABASE

THE FINAL ROUTINES

Ian Finlayson's database is concluded this issue to leave you with a fully working program to which you may add further refinements

Here we are at the last stages of the database program. The only important module of the program which remains to be typed is a sort routine which allows the database to be sorted in different ways. This will make your data easier to use once it is entered. I have also written a short set of 'instructions' and as well as these I will suggest a little tidying up and also ways that you can improve the program if you wish.

First to remind you of the way to combine the four parts of the program. Type each of the four listings, check it carefully with Typo 3 and list it to tape with LIST "C:", then ENTER each in turn. Be sure to enter them in the same order as they were published, as the later listings deliberately overwrite some of the earlier lines. If you already have parts 1 to 3 combined and working just type this listing, LIST it to tape, CLOAD the previous sections and ENTER this one to add it. Finally CSAVE the whole.

THE SORT ROUTINE

Sorting things is one of the activities that computers are very useful for, and it is quite easy to develop a simple program which will sort items in a list or, as in this case, in a string. One of the simpler sorts such as a bubble sort would be the easiest to understand, but with a program written in Basic it is really necessary to use something faster or the sort process would be annoyingly slow. I am no expert at sorting theory and so I looked for help on this aspect of the program. Fortunately I found just the thing on one of the Page 6 public domain disks. Disk #35 (Utilities 5) has a short program that compares a bubble sort, shuttle sort and shell sort. The shell sort is much the fastest but it is rather difficult to follow. I have just taken the original program and modified it to suit my needs in the database. Many thanks to Steve Golden of Eugene ACE, the author of the original routine. Here is a brief description of what I have done.

Line 35 is modified to include the line number for the Date Sort subroutine described below and sets the variable FL to the length of one record.

Lines 3001 to 3016 set up the menu screen for the sort. I have chosen to provide sorts based on Surname, Postcode and Date.

Lines 3020 to 3026 get the value of the keypress and apply an offset OFF depending on the selection. If a valid selection is not made the program jumps back to 3001 and restarts the selection process. The offset is the distance into the record at which the field we wish to sort on starts - if we wished to sort by forename OFF would be zero as forename is the first field of each record.

I have included the sort by date as it is a special case. We conventionally write the date in the form day, month, year (or DDMMYY for short), but if we sort this as it stands the day will be given higher priority than the year so that, for example, 200144 is considered to be greater than 190145! The result of such a sort would be very confusing to say the least. This is why there is a GOSUB to the subroutine Datesort in line 3024 before the main sort starts.

Lines 3040 to 3100 are the sort itself. I will not try to talk you through this as it is fairly complex, you will have to get a book on sort theory from your library if you are interested. I is easier to follow if you remove all the OFFs as if the sort is being done on the whole record, not on individual fields within the record.

Line 3110 goes to Datesort again so the date field is switched back to its normal order before line 3120 returns to the main menu.

INSTRUCTIONS

Lines 11030 to 11170 contain the instructions. I will not dwell on this as they are straight text strings resulting in two screens of instructions. At the end of each screen a GOSUB KEYPRESS is put in so that the instructions stay on screen until a key is pressed.

DATE SORT

As I mentioned above the most significant part of the date must come first in order to sort the date logically - that means that the year must be first, then the month and finally the day of the month. The short subroutine Datesort accesses each record in turn and takes the date in the conventional form DDMMYY and swaps the first two digits with the last two to give YYMMDD. When sorting is complete Datesort is used again to put the dates back to normal.

PRINTING TO TAPE

I must now clear up a mistake I made back in Issue 38 when I said "for some reason strings that are INPUT from tape pick up 10 spaces in front". The reason there were 10 spaces in front was because I put them there during the save data routine!! Look at line 7050, it reads "? #1,R$" and in a print statement a comma means 'Tab' and the default value of the tab is 10 spaces. So, if the line is changed to ? #1;R$ there will not be 10 spaces on the front of every record.

If you make this change you must also change line 8070 in the Load subroutine to read INPUT #1,IN$: DAT$(X*115-114)=IN$

Be careful if you are making these changes and note that any data recorded with the old program will be incompatible with the new - it will not register correctly with the fields of the database because the blank spaces will not be stripped off during the loading process.

Many thanks to Roald Sund in Norway for identifying my mistake and taking the trouble to write and inform me.

DEVELOPING THE PROGRAM

a. Crash Proofing - I have kept the program fairly simple with the result that it is certainly not fully crash proof. Crash proofing can be quite complicated and the appropriate programming will occupy memory that is better devoted to data. However there is

```
EI 1 REM ********************************
NU 2 REM *    TUTORIAL SUBROUTINE       *
XZ 3 REM *    ADDRESS BOOK PART 4       *
LS 4 REM *           by                 *
WL 5 REM *       Ian Finlayson          *
ED 6 REM * ---------------------------- *
NK 7 REM * NEW ATARI USER - October 89 *
EP 8 REM ********************************
NO 9 REM
GY 35 RETRIEVE=13500:PRINREC=13600:DATESO
   RT=13700:FL=115
HS 3000 N=LEN(DAT$)/115
WO 3001 ? "↰":? "              ****  SORT MENU
   ****":? :?
LC 3010 ? "↓↓              1. SORT BY SURNAME"
MN 3012 ? "↓↓              2. SORT BY POSTCODE
   "
DH 3014 ? "↓↓              3. SORT BY DATE"
EG 3016 ? "↓↓            *** CHOOSE A NUMBER *
   **"
US 3020 GOSUB KEYPRESS:IF KEY=49 THEN OFF
   =15:GOTO 3040
XM 3022 IF KEY=50 THEN OFF=87:GOTO 3040
RF 3024 IF KEY=51 THEN OFF=109:GOSUB DATE
   SORT:GOTO 3040
RI 3026 GOTO 3005
QO 3040 D=INT((2^INT(LOG(N)/LOG(2))-1)+0.
   5)
WF 3050 FOR I=1 TO N-D:FOR J=I TO 1 STEP
   -D
GG 3060 JB=J*FL-FL+1:JE=J*FL:DFL=D*FL
KA 3070 IF DAT$(JB+OFF,JE)<=DAT$(JB+(DFL)
   +OFF,JE+(DFL)) THEN J=1:GOTO 3090
YZ 3080 R$=DAT$(JB,JE):DAT$(JB,JE)=DAT$(J
   B+(DFL),JE+(DFL)):DAT$(JB+(DFL),JE+(DF
   L))=R$
WZ 3090 NEXT J:NEXT I
PM 3100 D=(D+1)/2-1:IF D>0 THEN 3050
XW 3110 IF KEY=51 THEN GOSUB DATESORT
AJ 3120 RETURN
BW 10999 REM **INSTRUCTIONS ***
LJ 11000 ? :? "DO YOU NEED INSTRUCTIONS?
   (Y/N)"
MA 11010 GOSUB KEYPRESS
GS 11020 IF  NOT (KEY=89 OR KEY=121) THEN
    RETURN
```

```
NC 11030 ? "↰":? "        *** INSTRUCTIONS
   ***          "
OL 11035 ? "          ------------
     "
EL 11040 ? :? "THIS DATABASE IS DESIGNED
   FOR THE     RECORDING OF NAMES AND ADD
   RESSES."
ZH 11050 ? :? "THE MAXIMUM NUMBER OF RECO
   RDS IS 100  BUT YOU MAY BE ABLE TO INC
   REASE THIS"
IE 11060 ? "BY DELETING REM STATEMENTS FR
   OM THE   PROGRAMME AND CHANGING THE SI
   ZE OF    "
UL 11070 ? "DAT$ IN LINE 12000. THESE INS
   TRUCTIONSCAN ALSO BE DELETED IF NOT RE
   QUIRED."
MK 11075 ? :? "DAT$ SHOULD BE A MULTIPLE
   OF 115 (THE NUMBER OF CHARACTERS IN ON
   E RECORD)"
CS 11080 ? :? "THE PROGRAMME IS WRITTEN I
   N BASIC AND SO MAY BE READILY ADAPTED
   FOR OTHER   DATABASE APPLICATIONS."
DI 11090 ? "↓↓PRESS ANY KEY FOR MORE"
LZ 11100 GOSUB KEYPRESS
VY 11110 ? "↰":? :? "   *** INSTRUCTIONS
   (CONT) ***         "
TT 11120 ? "       -------------------
          "
BS 11130 ? :? "THE DATABASE ITSELF IS MEN
   U DRIVEN    JUST FOLLOW THE ON SCREEN
   PROMPTS"
NH 11140 ? :? "IT IS ADVISABLE TO BREAK T
   HE TAGS ON  YOUR PROGRAMME CASSETTE TO
    AVOID"
LL 11150 ? "INADVERTANTLY SAVING DATA OVE
   R THE    PROGRAMME."
ND 11160 ? "↓↓↓↓↓PRESS ANY KEY"
SP 11170 GOSUB KEYPRESS:RETURN
FE 13699 REM ** DATE SORT  ***
MB 13700 FOR X=1 TO LEN(DAT$)/115
OJ 13710 R$=DAT$(115*X-5,115*X-4)
TN 13720 DAT$(115*X-5,115*X-4)=DAT$(115*X
   -1,115*X)
RE 13730 DAT$(115*X-1,115*X)=R$
JY 13740 NEXT X:RETURN
```

one area in which a little extra protection is easily inserted; that is the keypress subroutine. This routine is used many times by the program and it would be easy to insert a line or two which ensure that the keyboard is set to upper case and normal rather than inverse characters. This will eliminate quite a lot of potential crashes. I covered keyboard input in some detail back in Page 6 Issue 31 (January/February 1988) if you need guidance.

b. Use All Free Memory - I do not know how many addresses the average person needs to keep track of, but there will always be a need to fit in just one more. I have set up for 100 in the initialisation statement at line 12000, but this can be increased quite easily, all that need be done is to increase the size of DAT$. Easy, but there is a snag - if you make it too big the computer's memory will be insufficient and the program will crash - probably with an Error 2,5 or 9. An easy way to check how much spare memory you have with your specific hardware configuration is to insert a temporary extra line 45 as follows: 45 ?FRE(0):STOP

When you run your program this comes after the initialisation subroutine in which all strings are dimensioned. It will stop the program and print a value equal to the free memory. Most of this memory can be added to DAT$, but leave a little for the variables which are introduced later in the program (there are several in the sort subroutine for instance). Don't forget to delete line 45 when you have finished with it or your program will stop here every time.

c. Find Some Extra Memory - If you wish to squeeze yet more memory for a few more records you can delete all the REM statements from the program without changing its operation in any way. I advise you to keep one back-up copy with the REMs in for future reference as programs without comments are much more difficult to follow when you want to get in and change them. You can also delete the instructions. Another way of saving memory is to put several statements on one program line - again this makes the program less readable, and it must be done carefully or you may inadvertantly remove a line which is referenced elsewhere in the program, but quite a bit of memory can be saved. Do not combine lines with IF in them or you will probably change the logic.

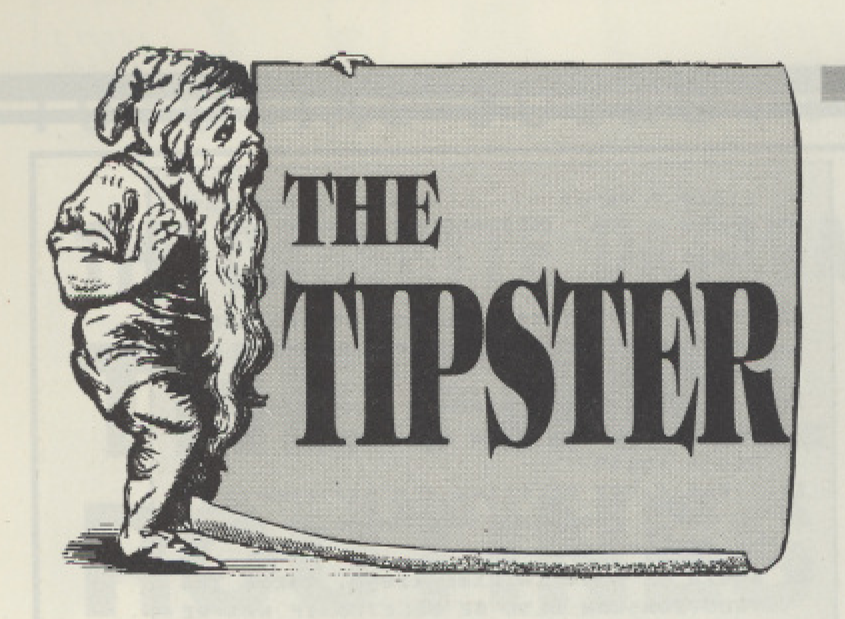
If you are a fortunate disk user there is a utility on Page 6 library disk #7 called 'Compact' which will carry out much of this memory saving for you automatically.

d. Further Enhancements - I know of one young man who is working on a program which uses the joystick instead of the cursor keys to point to the various selections and menus of a database, and I look forward to seeing the end result.

Personally I am thinking of developing the program for disk use, and rewriting it in Turbo Basic for speed and readability.

There must be many other ways that it can be enhanced and many applications other than an address list that it can be modified for. Please let me know of the developments you make. Write to me also if you have problems with the program, but please be as specific as possible and include return postage - send your whole cassette if you wish, I will return it.

My address is: Ian Finlayson, 60 Roundstone Crescent, East Preston, West Sussex BN16 1DQ.



Thank you everybody for your continuing support for your fellow Atari gamesters and your superb efforts in supplying me with valuable information and maps. I must point out that it would not be right for me to publish maps from other sources - ORIGINAL WORK ONLY PLEASE - but they are useful for reference nonetheless! We try to maintain a balance between old and recent games as we also try to give a fair share of all types of game. This input relies solely on readers requests and contributions so keep it coming!

I'm particularly pleased (and eternally grateful!) to hear from Garry Francis at last. His map and solution to THE DARK CRYSTAL will prove invaluable to many readers. Here we go!

HOW TO BEAT THE HEDGEHOG

Proving the point that there's always someone out there who can help a fellow Atarian, along comes Mark Standing of Westbury, Wilts with an answer to Kieron Wray's plea (in Issue 39) for help on **SPIKY HAROLD** .... JUMP from the FAR LEFT of the screen onto the low wall, as the WASP flies to the RIGHT. Then, when the WASP flies to the LEFT quickly JUMP onto the higher the wall. As the WASP returns JUMP straight UP then JUMP to the RIGHT as the second BUG goes DOWN, then go RIGHT .... you are now in Screen 2!!

Another answer for Kieron was missed out of the last issue - 'twas the Ed chopping it out really! - when he wanted help on **MINER 2409'ER**. Here's that missing answer ... Start the game then go to a 'safe' place onscreen. Type 213(Space) 782(Space) 6861 then press SHIFT and 1 to 0. 1 = Level 1, 0 = Level 10. Am I forgiven?

CHEATS AND PASSWORDS!

Let's face it, most of us like to cheat once in while don't we? Michael Wood of Stockport has sent in this bundle of tips for all sorts of games so anyone who is stuck on this lot can dig out those games and try again. First off is **GHOSTCHASER**. If you type FANDA, you will have extra lives and be able to start on the next level. In **DONKEY KONG JNR**, holding SHIFT and typing BOOGA will get you in cheat mode. Now press K and the crocs won't be able to kill you! Press S to move to the next screen. Golfing fanatics can carry their points score forward in **LEADERBOARD** by pressing OPTION to leave the game and go on to the next course.

More from Michael ☛

How about some passwords? You should play the games through really and find these out yourself but we won't tell your friends that you cheated. In **WHIRLINURD** the password is IAMTHEHUNGRYDUDE. For **STARQUAKE** there are a number of passwords for the various levels - TRIAD - ARTIC - DELTA - KERNX - ARGON - QUARK -WHOLE - SALCO - ATARI - PENTA - CRASH - Z.A.P - MINIM - COSEL - ZALLO - SECON. Where do they think all these up? Finally from Michael, the password for **PHARAOH'S CURSE** is SYNISTOPS. Get those games out again and see how far you can get this time!

William Slater of Hove appears to be an Adventurer who has discovered some interesting secrets. If you have the original 'lenslok' version of **PRICE OF MAGIK** (and haven't thrown the darn thing away out of frustration!) you can gain a big advantage when you die. Just enter RESTORE and when the Lenslok screen appears simply type in the wrong code 3 times for the game to restart from where you died, only now you will have 251 stamina points and retain your equipment! If you are having problems getting poisoned in **GAUNTLET** try taking a look at the food before you pick it up. If it has a SQUARE on it then it is fine but a TRIANGLE indicates poison!

Flyers out there with **F15 STRIKE EAGLE** can happily fly along without any fuel by turning the F15 into a sort of glider with power (solar powered?). If you realise that you have mismanaged your fuel and have run out, just press A and from then on you can happily fly along on fresh air! On a totally different tack try this one in **CRYSTAL RAIDER**. When you start the game, hold down the FIRE button and press START. You will become invulnerable!! These tips come from Nicholas Bavington of Newport Pagnell who also sent in a couple of ST tips. The password for the 2nd Level in **PREDATOR** (ST) is ENOLA GAY .... Yes, I know Nick, it WAS the name of the American bomber that dropped one on our oriental adversaries in WW2!! It's also the title of one of my favourite OMD numbers! Finally in **R-TYPE** (ST), when prompted to INSERT DISK B, press HELP and type ME then press the UP ARROW to activate the cheat mode. Function Keys 1-4 give invulnerability, ability to fly through walls, 99 credits or mouse control respectively!

The Sony Walkman Personal Hi-Fi promised in the last issue should by rights go to Garry Francis for his solution to The dark Crystal but you might accuse us of bias so we are sending it instead to Michael Wood for his bundle of tips. I'll beat the Editor about the keyboard to try and get him to send something else to Garry!

*We had lost of crazy suggestions about what to give away in this column like bikes, expensive sports equipment and golf clubs! Come on gamesters, do you know how much these things cost? Just to show that The Tipster is not mean, next issue we will go crazy and give away a **FERRARI TESTEROSSA** (like Davy Crockett drives in Miami Vice) and we'll even throw in the glue! Get writing, you never know how lucky you might be!*

CYBERNOID On the option screen enter RAISTLIN then press SPACE to activate the cheat mode.

Thanks to Dr.Caric from somewhere [illegible] world

(wherever [illegible])

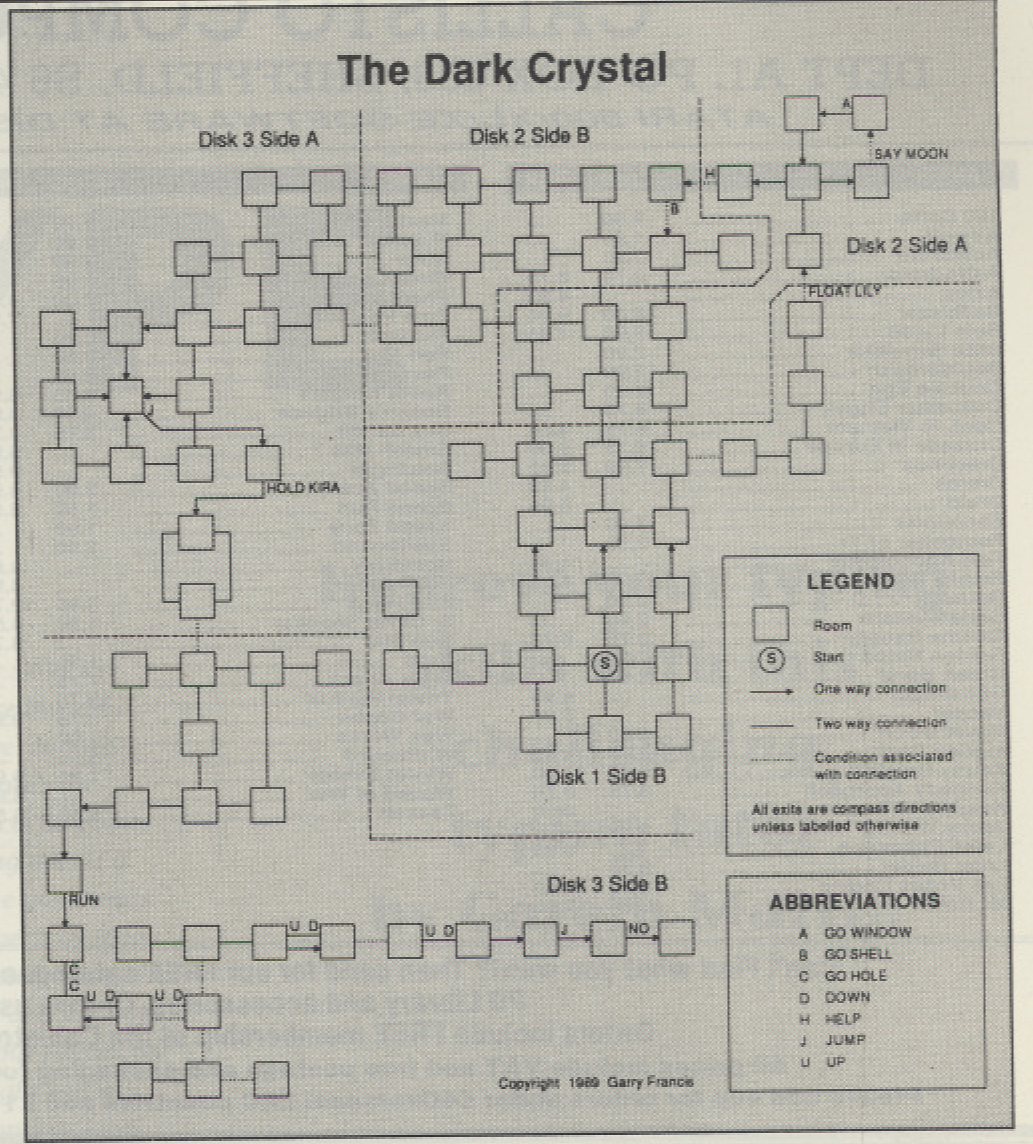
The Dark Crystal

THE MAP AND SOLUTION FROM GARRY FRANCIS

Some hints first, see if you can complete the game without checking out the full solution.
If you're using a pirated copy of the game, then you don't deserve to finish it anyway! Get an original copy, as the documentation has some valuable background info. After reading the background info try and see the movie (or hire the video) . Only then will you be adequately prepared to solve the game!
There are lots of hints hidden within the game, but knowing that they exist or finding them is not necessarily easy. In particular, make sure that you:

(a) Talk to Ursu before he dies (to find out what the riddle is)
(b) Study the spiral under the moss (to find the answer to the riddle)
(c) Listen or talk to the brook (to see what it's babbling about)
(d) Examine the hieroglyphics in the ruins (to find out about two objects you need, a special ability of Kira, a place you need to go and a symbol you need to enter it) .
(e) Examine the shadows in the valley of the stones (to lead you to one of the above objects)
(f) Use that object to correctly identify the shard.

In the early parts of the game, you may be attacked by the Garthim at random intervals. If this happens, either move away immediately (N, S, E, W, RUN, ESCAPE) or throw one of the smoke seeds at it. (You'll find these in the pouch under the beetle shell) . You can also prevent the attacks happening in the first place, as each attack is preceded by the appearance of a crystal bat. If you kill the bat by slinging a pebble at it, the attack will not occur!



THE MAP ▲ THE SOLUTION ▼

The following solution includes the steps necessary to find the hints, but once known, the game can be solved without them. In fact, even though the game covers 6 disk sides, it can be solved in only 83 moves! .

LOOK - W - W - W - N - TALK URSU - S - E - E - E - E - GET SHALE - N - W - W - DIG - GET FLUTE - N - N - CUT LILY - E - LISTEN BROOK - GET PEBBLES - N - (Insert Disk 2, Side A) - N - SIT - N - (Insert Disk 2, Side B) - GET MOSS - STARE SPIRAL - S - (Insert Disk 2, Side A) - S - E - GET SLING - S - (Insert Disk 1, Side B) - E - E - N - N - FLOAT LILY - (Insert Disk 2, Side A) - N - E - LOOK - LOOK - LOOK - LOOK - HELP - YES - SAY MOON - LOOK SHARD - PLAY FLUTE - GET BLUE - GO WINDOW - S - W - HELP - (Insert Disk 2, Side B) - TURN SHELL - GET POUCH - GO SHELL - W - W - W - RIDE LANDSTRIDERS - W - W - W - (Insert Disk 3, Side A) - W - W - S - S - W - JUMP - HOLD KIRA - E - SEND FIZZGIG - THROUGH GATE - LOOK - UNLOCK GATE - OPEN GATE - S - (Insert Disk 3, Side B) - W - S - W - LOOK - S - RUN - GO HOLE - UP - UNTIE AUGHRA - E - S - W - E - E - GO CURTAIN - N - N - W - GET SCEPTER - E - E - E - USE HOOK - E - UP - E - JUMP - NO - FIX CRYSTAL - KISS KIRA.

LOTS OF HELP NEEDED

Quite a lot of appeals this time for specific games. Can you help with any of these?

Michael Wood who gave us a lot of tips would like some in help in return. **ESCAPE FROM TRAAM** has him foxed and he would also like the password/code for Part 2 of **SAVAGE ISLAND**. Why don't you just complete Part 1, Michael! Andrew C. Thompson would appreciate a Map of **CHIMERA**, information on the last scenario of QUASIMODO, help with Level 11 of **DESMOND'S DUNGEON** and also the start code for **SAVAGE ISLAND Pt.2**. Can we help Duncan Blackwell progress happily through **DRUID** (Firebird)? Dean Chadwick would like to crumble beyond Level 2 of Red Rat's **CRUMBLE'S CRISIS** whilst James Clifford just wants to cheat with **JET SET WILLY**. Simon Gildea is having crossroads problems in S.W.A.T. whilst **ACE OF ACES** is proving a pain for Andrew Firby. After each game ends he is returned to the Status Screen to learn his cause of death, etc. Is there any easy way of restarting this game without having to endure that tedious loading time?

That's a whole lot to work on but we love 'em all - adventures, arcade, flight sims, anything you fancy. Please send any answers, hints or tips to **THE TIPSTER, NEW ATARI USER, P.O. BOX 54, STAFFORD, ST 16 1DR** so I can publish your response in these pages ... that way a few other gamesters might benefit if they are experiencing similar problems, but were afraid to ask!.

A TIPSTER EXCLUSIVE!

I'M A NEW ATARI USER TIPSTER

Every reader sending in NEW hints, tips, cheats, maps etc. to THE TIPSTER will receive an EXCLUSIVE TIPSTER badge! There is no other way you can get one of these badges so get writing now. Share your discoveries with all your fellow Atarians.

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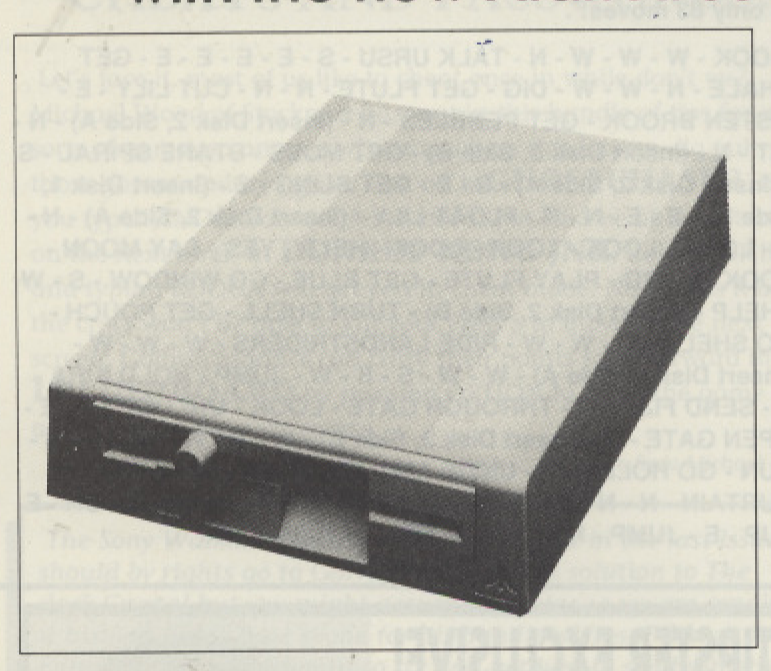
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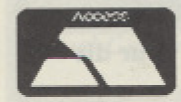
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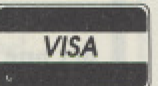
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K-TYPE

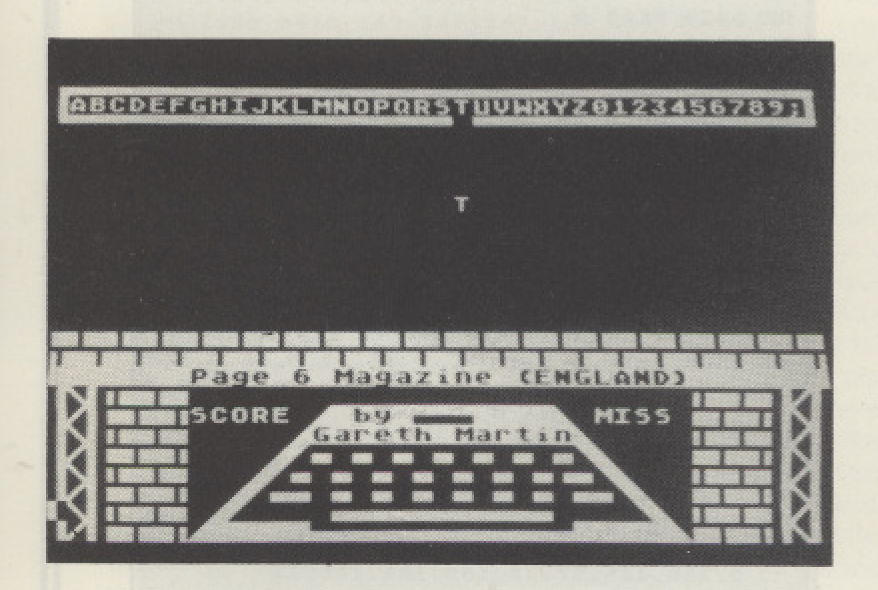
Improve your typing skills with this challenging typing tutor

by Gareth Martin

K-Type is game designed to help you improve your skills in touch typing. It is an alphabetical version of 'space invaders'. Letters drop from the top of the screen and must be 'zapped' before they hit the ground. Each letter caught rewards the player with 10 points. A wrong letter typed subtracts 80 points from the score. Each letter falls faster the preceding one. If a letter hits the ground before a key is typed then the game ends.

You will probably find it quite difficult at first especially if you need to look at the keys rather than the screen but after a while you will begin to remember where each of the keys are. Try not to use just one finger for each letter. If your rest your fingers on the keys ASDF for the left hand and JKL; for the right you will find that the right fingers will reach for the appropriate keys almost naturally. Remember the object is not to get the highest score but to improve your typing skills. If you stick at it you should find a noticeable improvement. Good luck.

Thanks are due to Colman Nealon who suggested improvements from a novices point of view.



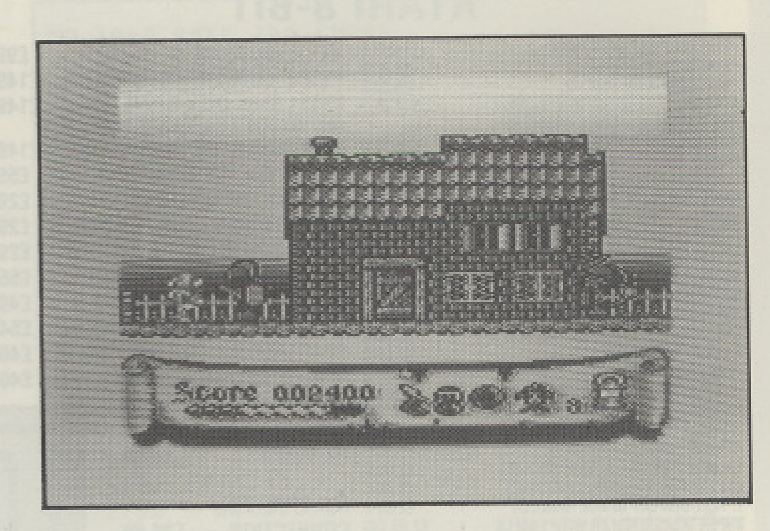

```
EI 1 REM ******************************
RC 2 REM *           K- TYPE          *
LR 3 REM *             by             *
DT 4 REM *        Gareth Martin       *
TC 5 REM *                            *
ED 6 REM * -------------------------- *
NK 7 REM * NEW ATARI USER - October 89 *
EP 8 REM ******************************
NO 9 REM
QY 70 POKE 559,0:POKE 710,0:POKE 566,143:
   POKE 764,255:POKE 82,4:DIM A$(120),COP
   Y$(34)
IB 80 GOTO 1000
DW 90 REM **   RE-DEFINE   **
UH 100 REM ** CHARACTER SET **
VT 110 RESTORE 190
VM 120 READ I
LU 130 IF I<0 THEN GOTO 230
RB 140 FOR P=0 TO 7
WM 150 READ K
CT 160 POKE CHBAS*256+(8*I)+P,K
IX 170 NEXT P
MS 180 GOTO 120
DH 190 DATA 3,0,0,255,255,255,255,255,255
QS 200 DATA 4,0,0,231,231,231,231,231,231
JR 210 DATA -99
EC 220 REM **** DRAW SCREEN *****
PY 230 GRAPHICS 0:POKE 559,0:POKE 203,CHB
   AS:POKE 756,CHBAS:POKE 709,15:POKE 82,
   0:POKE 710,112:POKE 712,112:POKE 752,1
TC 240 POKE 764,255:GOTO 1810
DU 250 POKE 559,46:POKE 53279,16:POKE 16,
   64:POKE 53774,64
EM 260 SOUND 0,182,10,10:SOUND 1,100,12,1
   5:FOR DE=0 TO 100:NEXT DE
DA 270 SOUND 0,144,10,10:FOR DE=0 TO 50:N
   EXT DE
EI 280 SOUND 0,121,10,10:FOR DE=0 TO 80:N
   EXT DE
KC 290 SOUND 0,182,10,10:FOR DE=0 TO 100:
   NEXT DE
TF 300 SOUND 0,144,10,10:SOUND 1,75,12,15
   :FOR DE=0 TO 200:NEXT DE
DK 310 SOUND 0,0,0,0:SOUND 1,0,0,0
```

```
NP 320 REM **** MAIN PROGRAM ****
GB 330 REM **** CONTROL LOOP ****
OY 340 DG=AL*7:DG=70-DG
LC 350 Y=INT(RND(0)*37)+1:Q=2:DG=DG-0.5
OW 360 LOCATE Y,1,Z
UJ 370 ? "↓↓←";CHR$(Z);"↑↑←";CHR$(Z);"↓"
ZT 380 POSITION Y,Q:? " ":Q=Q+1
DF 390 SOUND 0,255,10,15:FOR DE=0 TO 2:NE
   XT DE:SOUND 0,0,0,0
IQ 400 POSITION Y,Q:? CHR$(Z)
TM 410 IF Q>12 THEN ? "◙":GOTO 900
QE 420 L=PEEK(764):IF L<>255 THEN 450
KZ 430 FOR DE=0 TO DG:NEXT DE
PV 440 GOTO 380
NN 450 IF L=63 THEN L=65:GOTO 840
MA 460 IF L=21 THEN L=66:GOTO 840
PM 470 IF L=18 THEN L=67:GOTO 840
RX 480 IF L=58 THEN L=68:GOTO 840
PW 490 IF L=42 THEN L=69:GOTO 840
KU 500 IF L=56 THEN L=70:GOTO 840
JY 510 IF L=61 THEN L=71:GOTO 840
MZ 520 IF L=57 THEN L=72:GOTO 840
KQ 530 IF L=13 THEN L=73:GOTO 840
WY 540 IF L=1 THEN L=74:GOTO 840
ZI 550 IF L=5 THEN L=75:GOTO 840
YG 560 IF L=0 THEN L=76:GOTO 840
QQ 570 IF L=37 THEN L=77:GOTO 840
QR 580 IF L=35 THEN L=78:GOTO 840
DW 590 IF L=8 THEN L=79:GOTO 840
HN 600 IF L=10 THEN L=80:GOTO 840
MN 610 IF L=47 THEN L=81:GOTO 840
KL 620 IF L=40 THEN L=82:GOTO 840
MY 630 IF L=62 THEN L=83:GOTO 840
OI 640 IF L=45 THEN L=84:GOTO 840
MJ 650 IF L=11 THEN L=85:GOTO 840
PJ 660 IF L=16 THEN L=86:GOTO 840
RK 670 IF L=46 THEN L=87:GOTO 840
PV 680 IF L=22 THEN L=88:GOTO 840
RX 690 IF L=43 THEN L=89:GOTO 840
JZ 700 IF L=23 THEN L=90:GOTO 840
MO 710 IF L=50 THEN L=48:GOTO 840
NC 720 IF L=31 THEN L=49:GOTO 840
GG 730 IF L=30 THEN L=50:GOTO 840
JH 740 IF L=26 THEN L=51:GOTO 840
JI 750 IF L=24 THEN L=52:GOTO 840
MI 760 IF L=29 THEN L=53:GOTO 840
MJ 770 IF L=27 THEN L=54:GOTO 840
LW 780 IF L=51 THEN L=55:GOTO 840
NP 790 IF L=53 THEN L=56:GOTO 840
PM 800 IF L=48 THEN L=57:GOTO 840
ZP 810 IF L=2 THEN L=59:GOTO 840
MG 820 ? "◙":GOTO 840
MI 830 REM **** SCORE ****
EF 840 SOUND 0,100,10,15:FOR DE=0 TO 5:NE
   XT DE:SOUND 0,0,0,0:IF L<>Z THEN ? "◙"
   :MIS=MIS+1:SC=SC-80
ZD 850 POSITION Y,Q:? " ":SC=SC+10:IF SC<
   0 THEN SC=0
YS 860 POSITION 8,18:? SC;:? " ":POSITION
    28,18:? MIS;:? " "
DZ 870 IF MIS>19 THEN GOTO 900
VR 880 POKE 764,255:GOTO 350
PP 890 REM **** GAME OVER ****
VA 900 POSITION 2,8:? "<GAME OVER - PRESS
    START OR OPTION>"
HI 910 IF PEEK(53279)=6 THEN SC=0:MIS=0:G
   OTO 940
VE 920 IF PEEK(53279)=3 THEN CLR :POKE 75
   2,0:POKE 712,0:RUN
PH 930 GOTO 910
PA 940 POSITION 0,2:RESTORE 1630:FOR N=1
   TO 38:READ I:? CHR$(I);:NEXT N
OH 950 POSITION 0,13:RESTORE 1660:FOR M=0
    TO 38:READ I:? CHR$(I);:NEXT M
OR 960 POSITION 2,8:FOR G=0 TO 36:? CHR$(
   32);:NEXT G
XP 970 POSITION 8,18:? "   ":POSITION 28,
   18:? "   "
OR 980 GOTO 250
YG 990 REM ** CHAR SET ROM/RAM COPY **
LA 1000 RESTORE 1070
GW 1010 FOR I=1 TO 34
IW 1020 READ A:COPY$(I,I)=CHR$(A)
EY 1030 NEXT I
KZ 1040 CHBAS=PEEK(106)-8
DH 1050 X=USR(ADR(COPY$),CHBAS*256)
MO 1060 POKE 756,CHBAS
BG 1070 DATA 104,104,133,215,104,133,214,
   169,224,133,213,169,0,133,212,162,4,16
   0,0,177,212,145,214,200,208,249,230
II 1080 DATA 213,230,215,202,208,242,96
WV 1090 OPEN #1,4,0,"S:":POKE 559,0:POKE
   710,0:POKE 566,143:POKE 764,255:POKE 8
   2,4
OZ 1100 GOTO 1410
GJ 1110 POKE 82,1:FOR T=0 TO 14:POKE 752,
   1:POKE 709,T:POKE 559,46
QG 1120 FOR DE=0 TO 4:NEXT DE
JR 1130 NEXT T
NT 1140 ?
UE 1150 TRAP 1260:RESTORE 1220
NM 1160 READ A$:FOR J=1 TO LEN(A$)
VK 1170 IF A$(J,J)="+" THEN GOTO 1260
IB 1180 IF A$(J,J)="*" THEN A$(J,J)="◙":?
HN 1190 ? A$(J,J);
FE 1200 NEXT J
QH 1210 GOTO 1160
LG 1220 DATA The foreman  hates the  sign
   writer  so much   that   he  has   sab
   otaged  the*
FO 1230 DATA scaffolding  around  the bui
   lding. The signwriter's plastic letter
   s are about*
OG 1240 DATA to fall off. Your job is to
   catch them before  they smash on the g
   round. Type*
FC 1250 DATA the falling letter on your k
   eyboard to catch it.*+
CB 1260 POSITION 1,20:? "            SELECT :
    :DIFFICULTY "
JG 1270 ? "           START :BEGIN GAME ":P
   OKE 82,11
XL 1280 AL=1:POKE 752,1:? "◙↑↑→→→→→→→*"
FA 1290 IF PEEK(53279)=6 THEN 1380
AP 1300 IF PEEK(53279)=5 THEN AL=AL+1
RX 1310 IF AL>9 THEN AL=1
FL 1320 POSITION 17,20:? AL:? "+"
VK 1330 FOR DE=0 TO 20
EN 1340 IF PEEK(53279)=6 THEN 1380
JD 1350 NEXT DE
DG 1360 IF PEEK(53279)=7 THEN 1360
TA 1370 GOTO 1290
UO 1380 FOR E=14 TO 0 STEP -1:POKE 752,1:
   POKE 709,E:FOR DE=0 TO 4:NEXT DE:NEXT
   E
PQ 1390 POKE 559,0:GOTO 110
FN 1400 REM ** TITLE SCREEN DATA **
NT 1410 RESTORE 1470
VM 1420 FOR X=1 TO 321
QE 1430 READ A
IS 1440 PUT #1,A
LV 1450 NEXT X
IZ 1460 POKE 82,2:CLOSE #1:GOTO 1110
DO 1470 DATA 32,32,21,21,21,21,21,21,21,2
   1,21,21,21,21,21,21,21,21,21,21,21,21,
   21,21,21,21,21,21,21,21,21,21,21
NY 1480 DATA 32,32,32,32,32,25,32,10,71,9
   7,114,101,116,104,32,77,97,114,116,105
   ,110,39,115,32,32,32
FL 1490 DATA 32,32,32,32,32,32,32,32,32,1
   53,32,32,32,32,32,25,32,160,32,8,10,32
   ,32,32,32,153,149,160
AP 1500 DATA 149,25,8,10,32,32,8,32,8,160
   ,10,32,8,160,160,136,32,153,32,32,32,3
   2,32,25,32,160,8,136
UE 1510 DATA 32,32,32,32,32,32,32,160,32,
   32,32,138,10,8,136,32,160,32,160,32,16
   0,32,32,32,32,153,32
CW 1520 DATA 32,32,32,32,25,32,160,160,32
   ,32,32,149,149,32,32,32,160,32,32,32,3
   2,160,136,32,32,160,160,136,32
FP 1530 DATA 160,160,160,160,32,32,153,32,32,
   32,32,32,25,32,160,138,10,32,32,32,32,
   32,32,32,160,32,32
PI 1540 DATA 32,8,136,32,32,32,160,32,32,
   32,160,32,32,32,32,153,32,32,32,32,32,
   25,32,160,32,138,136
MT 1550 DATA 32,32,32,32,32,32,136,32,32,
   138,136,32,32,32,32,136,32,32,32,138,1
   60,160,10,32,32,153,32
WK 1560 DATA 32,32,32,32,25,32,136,80,97,
   103,101,32,54,32,77,97,103,97,122,105,
```

K-TYPE continued

```
   110,101,32,40,69,78,71
CZ 1570 DATA 76,65,78,68,41,32,32,153,32,
   32,32,32,32,149,149,149,149,149,149,14
   9,149,149,149,149,149,149
PW 1580 DATA 149,149,149,149,149,149,149,
   149,149,149,149,149,149,149,149,149,14
   9,149,32,32,32,32,32,32,32,32,32,160
RP 1590 REM ** MAIN SCREEN DATA **
OA 1600 DATA 125,9,21,21,21,21,21,21,21,2
   1,21,21,21,21,21,21,21,21,21,21,21,21,
   21,21,21,21,21,21,21,21,21,21,21,21
OU 1610 DATA 21,21,21,21,21,15,32,153,65,
   66,67,68,69,70,71,72,73,74,75,76,77,78
   ,79,80,81,82,83,84,85,86,87,88
DF 1620 DATA 89,90,48,49,50,51,52,53,54,5
   5,56,57,59,25,32
FR 1630 DATA 11,149,149,149,149,149,149,1
   49,149,149,149,149,149,149
SE 1640 DATA 149,149,149,149,149,149,149,
   149,149,149,149,149,149,149,149,149,14
   9,149,149,149,149,149,149,149,12
YI 1650 DATA 32,29,29,29,29,29,29,29,29,2
   9,29
CA 1660 DATA 35,36,35,36,35,36,35,36,35,3
   6,35,36,35,36,35,36,35,36,35,36,35,36,
   35,36,35,36,35,36,35,36,35,36,35
YI 1670 DATA 36,35,36,35,36,35,32,36,35,3
   6,35,36,35,36,35,36,35,36,35,36,35,36,
   35,36,35,36,35,36,35,36,35,36,35
XN 1680 DATA 36,35,36,35,36,35,36,35,36,3
   5,36,35,36,32,160,160,160,160,160,160,
   160,208,225,231,229,160,182,160
LV 1690 DATA 205,225,231,225,250,233,238,
   229,160,168,197,206,199,204,193,206,19
   6,169,160,160,160,160,160,160
LB 1700 DATA 160,32,153,7,25,36,35,36,35,
   32,32,32,32,32,32,32,32,32,32,32,32,32
   ,32,32,32,32,32,32,32,32,32,32
CP 1710 DATA 32,32,36,35,36,35,153,6,25,3
   2,153,6,25,35,36,35,36,83,67,79,82,69,
   32,8,160,226,249,160,149,149,149
MO 1720 DATA 160,160,160,160,10,32,77,73,
   83,83,32,35,36,35,36,153,7,25,32,153,7
   ,25,36,35,36,35,32,48,32,32,32
OY 1730 DATA 8,199,225,242,229,244,232,16
   0,205,225,242,244,233,238,10,32,48,32,
   32,32,36,35,36,35,153,6,25,32,153
ZN 1740 DATA 6,25,35,36,35,36,32,32,32,32
   ,8,136,21,32,21,32,21,32,21,32,21,32,2
   1,32,21,138,10,32,32,32,32,35,36
EK 1750 DATA 35,36,153,7,25,32,153,7,25,3
   6,35,36,35,32,32,32,8,136,21,32,21,32,
   21,32,21,32,21,32,21,32,21,9,21
DN 1760 DATA 138,10,32,32,32,36,35,36,35,
   153,6,25,32,153,6,25,35,36,35,36,32,32
   ,8,136,21,21,32,21,32,21,32,21
JJ 1770 DATA 32,21,32,21,32,21,32,21,21,1
   38,10,32,32,35,36,35,36,153,7,25,32,25
   ,7,25,36,35,36,35,32,8,136,32,32
SF 1780 DATA 32,32,21,21,21,21,21,21,21,2
   1,21,21,21,32,32,32,32,138,10,32,36,35
   ,36,35,153,6,25,32,153,6,25,35
XG 1790 DATA 36,35,36,8,160,160,160,160,1
   60,21,21,21,21,21,21,21,21,21,21,21,21
   ,21,160,160,160,160,160,10,35,36
ET 1800 DATA 35,36,153,7,25,32
KX 1810 RESTORE 1600
LI 1820 POKE 82,0:? "K"
ZY 1830 FOR X=1 TO 570
AC 1840 READ W:? CHR$(W);
MD 1850 NEXT X
QT 1860 GOTO 250
```

TALES OF JOLLY JACK



Welcome to The Black Lamp. 'The Black Lamp. Being the story of Jack - Jolly Jack the Jester, hero of this medieval mission of daring and romance, this courageous crusade through rustic landscapes and Gothic interiors, this audacious quest to rid a kingdom of evil - where the reward for success is the hand of a Princess and the price of failure is death!'

And so begins the eloquently worded and highly enjoyable story of BLACK LAMP, a game from BT which should be well known to anyone who's purchased an ST Super Pack recently. There's a whole lot more to read in the super little booklet accompanying this welcome 8-bit conversion by Atari Corp. It tells of Jack's quest to prove his worth to the King so that he can marry Her Royal Highness Princess Orizelda, a daring exploration of a vast kingdom in an effort to return a missing set of magic lamps to their rightful place in the lantern cupboard. The lamps are scattered far and wide throughout the kingdom of Allegoria, but the black lamp is special - it is guarded closely by that most fearsome of enemies, the Dragon!

A superb piece of music welcomes you to this fast paced arcade adventure, and is soon followed by the first in a series of visually splendid locations. Scenes are a mixture of indoor and outdoor settings - indoor scenes consist of individual screens which 'flip' for replacement when necessary whereas outdoor locations scroll horizontally as Jack passes through them. Indoor scenes may contain such features as chairs, barrels, ladders, stairs and platforms for Jack to negotiate. Possible exits may be left or right, up, down or even in and out from your current position - mapping the vast complex won't be easy, but you are advised to persevere!

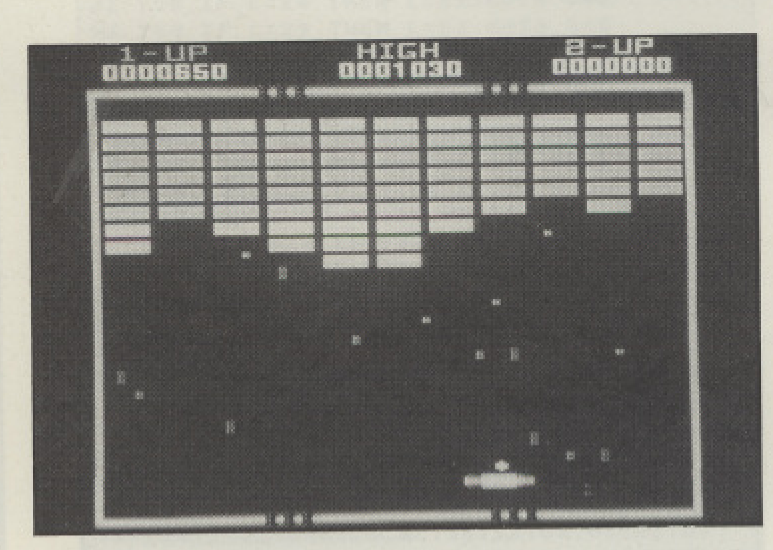
Jack must avoid or fight a variety of monsters on his travels but to help him there are various bonus objects and food parcels to collect along the way. Thanks to the spells of PratWeezle, Jack has five lives which are governed by his level of remaining energy. Subsequent games become progressively more difficult and no two are ever identical as the positioning of lamps, nasties and bonus objects is completely random.

Perhaps it's a little too late in Atari's history for BLACK LAMP to become a massive 8-bit hit but it certainly deserves a great deal of support for it is truly an enthralling product, worthy of the highest possible accolade. I highly recommended it.

Title:	**BLACK LAMP**
Publisher:	**Atari Corp.**
Price:	**£7.99 on cassette**
Players:	**1**
Control:	**Joystick**

Reviewed by Paul Rixon

BALLS BRICKS AND BATS



The brick, the bat and the ball - three essential ingredients of a game concept that is almost as old as Atari itself. First introduced in 8-bit form on the VCS, Breakout remained commercially unimitated until Imagine released their arcade conversion of Arkanoid - a game voted second best of 1987 by PAGE 6 readers. Some two years later, Atlantis have now decided to provide Atari gamers with CRACK-UP - a budget priced version of precisely the same thing! - well, almost. In something of a break from tradition, the use of paddle controllers is no longer included as an option. Bad news for the half-dozen players who actually own them!

For those newer Atarians who might be wondering what the game is all about, Breakout - or should I say Crack-Up - is all to do with zapping screens of bricks! A tiny ball takes care of the actual destruction as it zips around the screen, colliding with the bricks and rebounding off of three perimeter walls. Your job is to manipulate a bat across the fourth, open boundary so as to prevent the ball from bouncing out of play.

Naturally it's not quite as easy as it sounds, with variations in speed, indestructible blocks and a variety of wall configurations to contend with. Added interest is provided by a series of symbolic capsules that frequently float towards you after a brick has been eliminated. Catch the appropriate symbol and you may find yourself with an extra life, a laser-equipped bat or indeed any one of seven special goodies that players of Arkanoid will be familiar with. A two player mode is included, although unfortunately there isn't an abort game facility so if you make the wrong selection, you will have to wait for each of your five lives to deplete (and keep swapping the joystick over if you don't already have one plugged into port 2).

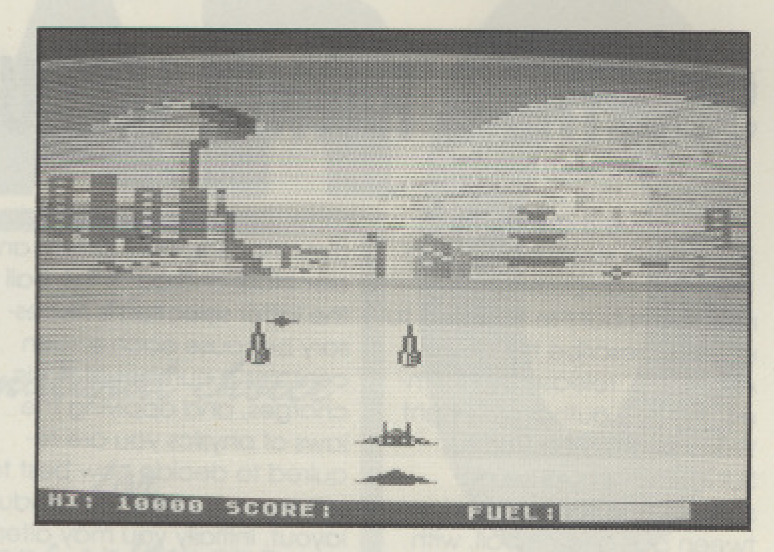
Graphics are generally pleasant without being anything spectacular, a scrolling starscape forming the background scenery and the bricks brightly painted in a wide range of colours. Sound effects are also acceptable, providing your monitor has the ability to turn down the volume!

Although not outstanding in any respect, Crack-Up is a reasonable budget offering that should certainly appeal to anyone looking for an up-to-date version of Breakout, especially if they don't want to spend a lot more money for the somewhat superior quality of Arkanoid.

Title:	**CRACK-UP**
Publisher:	**Atlantis Software**
Price:	**£1.99 on cassette**
Players:	**1/2**
Control:	**Joystick(s)**

Reviewed by Paul Rixon

SPORTS IN SPACE



What do you get if you cross a sports simulation with a fighter craft and a lunar landscape? The answer, it seems, is CYGNUS XI, a game that bears more than a passing resemblence to the ski slalom in Anco's Winter Events - perhaps not entirely surprising when you learn that Anco were originally to have released the game until a decision was made to pass it on to Atari.

As the galaxy's most renowned flying ace, your aim is to defeat the evil Emperor of Cygnus who apparently has plans to launch an offensive against the Earth, using it as a stepping stone to eventual galactic supremacy. To accomplish this dangerous task you must first attack a city complex on the planet Alpha Cygnus, then disable the industrial plant on Gamma Cygnus and the power station on Beta Cygnus before a final assault on the imperial planet of Cygnus XI and ultimately, the Emperor's palace. Flying fearlessly across a series of thirty two levels - over four locations - you must blast the defences, avoid mines and, most importantly of all, attempt to conserve your extremely limited supply of fuel.

From the screen shot above you will see that the background graphics are very impressive, consisting of a superbly designed 'Cygnus' landscape in the same artistic style of those locations in Winter Events. Shading in the lower portion of the screen gives a feeling of distance, whilst forward movement is suggested by energy towers which grow in size as you approach them in your fighter craft.

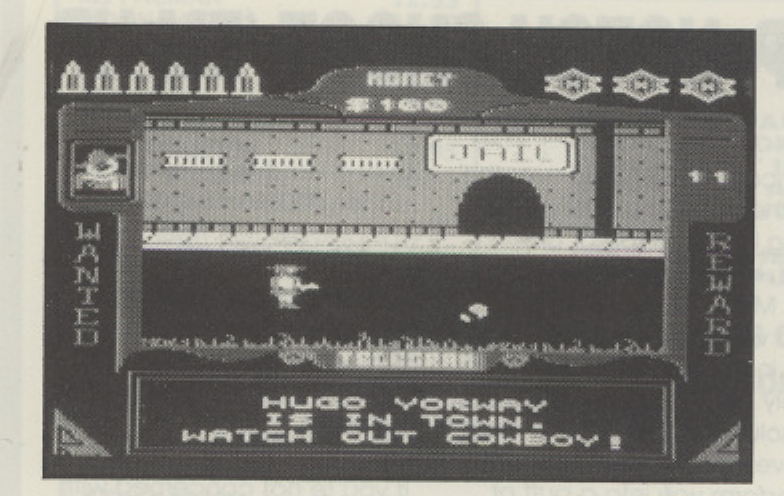
Despite all the pretty scenery I have to say that Cygnus XI doesn't score highly when it comes to the playability department. Such is the ridiculous fuel consumption of your ship that you can hardly afford to shoot at any enemies and are forced to concentrate solely on steering it through the energy towers which marginally increase your supplies. Trouble is, the quantity of incoming nasties is so great that they're almost impossible to avoid, and it's no time at all before you run out of fuel and have to start the game again from scratch. There are no second chances.

Overall, Cygnus XI suffers from looking much better at first sight than it actually plays. It seems as though nothing much has changed when it comes to Atari's pricing policy - if you want a top quality game then you're going to have to pay for it!

Title:	**CYGNUS XI**
Publisher:	**Atari Corp.**
Price:	**£2.99 on cassette**
Players:	**1**
Control:	**Joystick**

Reviewed by Paul Rixon

BACK IN THE WILD WEST



The wild west is at its wildest. Ruthless outlaws have taken over a town and stolen the deeds of the honest townsfolk's properties. Your mission, as county Sheriff, is to return the deeds and bring the baddies to justice. Well, that's all according to the plot of GUNFIGHTER anyway! For once, it pays to read the few lines of blurb printed on the cassette inlay as you may otherwise fail to notice that the game requires a joystick plugged into the second controller port - not the first. A confusing anomaly!

Basically, the Sheriff's job is to patrol the various streets and public buildings of the nameless town in the hope of capturing deeds or bandits. If you uncover a deed - or indeed a yellow brick which is apparently the same thing - you are rewarded with a cash bonus and informed of the number remaining to be found. Stumble across a baddie and you have to be lightning quick on the trigger in order to transform him into an RIP-endorsed grave symbol before he does the same to you! You can only carry six bullets simultaneously but additional supplies can be obtained from the Sheriff's Office when required. The Doc is the man to visit if you want an extra life - but only if you have amassed at least $500 to pay for one!

Graphics are designed to give the appearance of a cinema, dominated by a large red curtain that is raised to reveal the various locations in a central portion of the screen. Underneath is a 'telegram' panel where messages are displayed informing you of the whereabouts of outlaws and of the number of deeds remaining to be found. Although the background scenery is reasonable (albeit in three colours - red, blue and yellow!) the Sheriff himself is poorly defined and animated. As for the sound, it's sadly of the appalling nature that we've grown to associate with the Atlantis Software range.

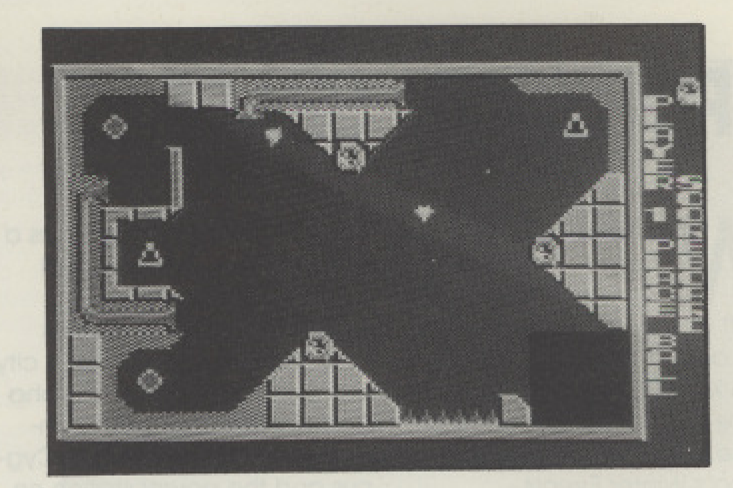
Completing Gunfighter is quite time consuming due to thẹ frustratingly slow rate of movement of the Sheriff, but not at all challenging. Even when you have collected all twenty deeds, the game simply continues with an uninspiring 'you've saved the town' message and a further set of deeds to collect. Hardly much of an incentive to continue playing.

I honestly can't find anything very positive to say about Gunfighter. Although young children may enjoy exploring the various buildings, I think that anyone hoping for long term entertainment would be quite disappointed.

Title:	**GUNFIGHTER**
Publisher:	**Atlantis Software**
Price:	**£1.99 on cassette**
Players:	**1**
Control:	**Joystick**

Reviewed by Paul Rixon

SOMETHING RATHER UNIQUE



Unique is a word that can rarely be applied to computer games nowadays but I'm tempted to use it to describe this new Atari Corp. release by Matthew Trimby - author of Twilight World and Crystal Raider. SLINGSHOT could be described as a sort of cross between golf and pinball, with control throughout being applied via an arrow shaped pointer which is 'clicked' to make selections - as if using a mouse.

Over a course of ten screens, your objective is to steer a small ball over several marked targets in the least number of shots. You have command over the direction, power and electrical charge of the ball - the latter selection is necessary because each screen contains a number of static charges, and applying the laws of physics you are required to decide how best to utilise each screen's individual layout. Initially you may alter a variety of parameters - these include the levels of charge and friction, method of scoring and the number of joysticks in use.

Click the 'play game' option and the screen changes to the Slingshot arena comprising of gravity slopes, friction bunkers, suction tubes and over ten other special features. After placing the ball in the starting area, you will be prompted to take a shot. This involves moving the arrow to a point you wish the ball to travel through before selecting the desired power level. It's then a case of watching, fingers crossed, to see if you made the right choice!

There are ten screens to a course and new courses may be loaded from cassette - an additional one is included after the main program code. If you don't fancy any of those provided simply flip over the tape and you'll find the Slingshot Construction Set, a separate program that you can use to construct and save as many new courses as desired! Subject to certain limits of quantity you can use any of the game elements and choose the colours from a grid of 128. You can also load a previously saved course for editing. The instructions suggest the possibility of saving screens to disk but it appears that this option has in fact been removed from the program itself - a pity.

There is so much to Slingshot that it's impossible to cover everything in a short review. Graphics and sound are both excellent and playability is another of the game's great strengths. If you're looking for something a bit different that requires skill and judgement rather than super fast reactions then you need look no further than Slingshot - it's great!

Title:	**SLINGSHOT**
Publisher:	**Atari Corp.**
Price:	**£7.99 on cassette**
Players:	**1/4**
Control:	**Joystick**

Reviewed by Paul Rixon

TOP NOTCH SHOOT 'EM UP

It really is pleasing to confirm the reality of Atari's new-found commitment to 8-bit products. Yes, there really is a terrific new range of software to back up the promises and Atari enthusiasts everywhere should be rushing out to snap some amazing new games. SPEED HAWK is one such release produced for Atari by Arena Developments, who were also responsible for the excellent Tiger Attack reviewed in issue 38. Apart from cosmetic differences, the two games are actually quite similar!

The inlay card talks of Space Pirates who are gathering strength to launch an attack on the ring worlds of Tintagel. It appears that you are the only one with sufficient skill and courage to tackle the intricate defence systems of the Pirates' Mothership and to destroy the mutant guardian who protects their fleet of space craft.

Whenever the word 'Mothership' crops up in a game description it's usually a signal to prepare for a Uridium clone and Speed Hawk is no exception to the rule. It's yet another vertically scrolling 'fly over the Mothership zapping everything in sight' type of game and, in common with Thunderfox, Mirax Force, Astro-Droid and various other shoot 'em ups in the same mould, is definitely not intended for the absolute beginner! One false move and an alien craft will transform you into a puff of space dust, quicker than it takes to look around an Atari Games Centre!! If you're lucky, the debris of a dying fighter craft may leave behind a power pill which may be used to your advantage. Simply fly over the capsule and you can obtain, among a variety of goodies, an increase in shield strength or an additional life. Once you reach the Mothership's command centre you must aim a constant blast of laser fire at the mutant guardian to ultimately win the battle - or at least, that's what it says on the packaging!

Speed Hawk is presented with all the graphical expertise that was prevalent in Tiger Attack - smooth vertical scrolling, well-defined players and tasteful colouring. The distinctive style of programming extends not only to the graphical aspects but to the musical effects as well.

If you're not concerned with originality and can afford the higher price of Atari's software you will undoubtedly be pleased with the purchase of Speed Hawk. It's a straightforward, uncomplicated but unquestionably top notch shoot 'em up.

Title:	**SPEED HAWK**
Publisher:	**Atari Corp.**
Price:	**£7.99 cassette**
Players:	**1/2**
Control:	**Joystick(s)**

Reviewed by Paul Rixon

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ATARI

Mark Hutchinson's

RANDOM NOTES

APOLOGIES ...

First of all I want to apologise to all those people who use tapes. My trusty 410, bought away back around 1980, has been dead for a couple of years and I really cannot see myself replacing it now. So, please do not send me tapes, I cannot handle them. I am quite willing to let you have some examples or routines to help explain programming techniques if you send me a disk, but not commercial stuff. Please do not ask!

I still get quite a lot of letters from readers asking for help but the content has changed dramatically from the time when I was writing the 'First Steps' column. At that time I was helping out beginners to ATARI Basic, now I am being asked about commercial software. Any software items I have for the 8-bit I have had for some years. For instance, I use ATARIWRITER PLUS and nothing else. I am very happy with it as it does all I ever want to do in word processing. I have no idea about other word processors, I never have call to use a spreadsheet, a comms package nor, believe it or not, do I have need of a database. Much as I hate to disappoint all those people who are looking for enlightenment I only ever stated that you would receive help with Basic programming. I must also add that I can competently handle a soldering iron but I know very little these days about electronic circuitry, so nothing technical please.

Having made one apology I will just as happily make another. For the past couple of weeks I have been in the north of England, all thoughts of writing gone from my head. Some people have had to wait a little while longer for an answer but if you have enclosed an SAE you will get a reply.

AND AGAIN!

Ah well, third time lucky. I have to say sorry for my replies about the XF551 drive. Never having tried one (my 810 and 1050 are still going strong!) I had supposed that the advertisement was correct and it was just wrong usage that caused the problem, but it seems that the supplied DOS does not do all it should. Mitch Mitcham wrote to me a few days ago to say that he had purchased MYDOS to try with his new XF. Maybe you remember Mitch's letter in issue 38? He was advised to get DOS XE which has not been seen over here (yet has been selling for about two years) but to try MYDOS if he could find it. After formatting a disk he found it to have 3989 sectors! Has anyone been able to use this disk drive as advertised? If so, do please write and let us know. I totally agree with Mitch that, if this drive and its associated DOS does not do what is advertised then proceedings should be taken against the advertiser. Perhaps the advertiser would care to give his comments to us as well so that I can tell users where they are going wrong.

Is this another ATARI cock-up? Am I fast becoming disillusioned with the Tramiel dynasty? When was the last time you heard from Jack? When was the last time you heard from ATARI UK even? Is it all a nightmare?

MORE THAN GAMES

For (in my humble opinion) the best hybrid ATARI magazine going, why is it that the ST section is comprised mainly of games reviews? I am the first to admit that I do not program on my ST but many people do. If you do not believe me then just look at the amount of material in the PAGE 6 ST Public Domain collection. In the last issue there were 23 pages in this section and the only item of interest to me was a four page article on STOS. I have read other magazines that have programming articles with long listings, no commenting and working on the intricate parts of the computer that most mortals shun but there are many different levels of programmer, and I have yet to see an article for the person who has bought the ST as their first ever computer.

To my mind the biggest error Atari made was to bring out a computer without a built-in Basic. Just think, the Basic could be on a chip which could be upgraded and could be switched in or out of use. This option is still totally feasible via the cartridge slot, but to make any sense of having a single standard ST Basic ATARI would have to supply the cartridges at next to no cost and release a new TOS. Don't hold your breath!

THE SHOWS

I had heard certain complaints that the London ATARI shows had been taken over by the 16-bit vendors so I made a point of noting the availability of 8-bit articles at the last show. I only found five stands with 8-bit items (not counting stands such as PAGE 6). Some of these stands even had VCS items. I was really surprised at the low price bargains to be had but, admittedly, they were mostly for the ST. Hopefully the number will increase at the alternative show in November, but how many people will come to the Midlands from the South? Will you be there to support PAGE 6 Publishing and other 8-bit retailers? We cannot print all letters but we would like to have your opinion on this matter.

Well, that is it for now. Hopefully by the end of the summer things will have brightened up on the computer scene.

ADDENDUM

Just as I finished this article a letter arrived from Jim Cutler to say that he uses SUPERDOS 3.5 which can be configured to the XF551 (he also recommends SPARTADOS X for the novice). Cherry Boulain's letter did not go into the 'Black Hole', letters from Tony Garbett and A.L. Morris (nice to hear from you again Arthur) go to the Editor for reasons given above.

Write to me, Mark Hutchinson, at:
1 Hollymount, Finaghy, Belfast, BT10 0GL

HEAD IN THE CLOUDS

THE SUBLOGIC STORY

The scene is the University of Illinois, sometime in the early 1970's. A young student called Bruce Artwick is studying for a degree in computer engineering, and his friend, Stu Moment, is pursuing a course in marketing. Stu is paying his way through university by working as a flying instructor at the university airport and, in one of those serendipitous twists of fate, eventually teaches Bruce to fly.

At this time Bruce was developing a microprocessor based 3D graphics package as part of his Master's thesis. Although Bruce's head was in the clouds, his feet were firmly on the ground as he planned to further develop the package into a saleable product, and with Stu's help, to market it.

By 1977 Bruce had the package ready, and together they produced and sold it from a caravan owned by Stu's family. Sublogic was in business! One small snag - this was 12 years ago and the home computer hadn't really yet been invented! Bruce's package was designed to run on the M6800 microprocessor, then just beginning to appear in homebuild computer kits, so sales were very low in comparison to today's levels. However, the situation was to change shortly after with the arrival of the 6502 chip, the basis of many home computer models.

Given the two friends' passion for flying it seemed only natural that Bruce's talent in 3D graphics manipulation should be channeled into a flight simulation program. In 1979 they launched Flight Simulator for an exciting new microcomputer called the Apple II, which amazingly offered graphics in FOUR colours (including black!). The Apple II was a great success and it soon became apparent that a mass market for software was emerging, and Bruce and Stu had a unique product to offer. Sales blossomed and the fledgling Sublogic company began taking on extra staff to handle the volume and to develop new products.



Stu Moment - Chairman of Sublogic and former flying insstructor

TAKE OFF!

By 1981 Sublogic had a staff of seven full time employees, and Bruce was masterminding a brand new project. A little known company called Microsoft had asked him to convert his simulator to run on an as yet unknown machine called the IBM Personal Computer, for which Microsoft were producing the operating system. They thought it would make an excellent demonstration of the machine's graphics capabilities, and agreed to market the new version under licence from Sublogic along with their other IBM PC products.

The IBM PC was an instant runaway success, and Bruce's brainchild, now being marketed as the Microsoft Flight Simulator, became a huge seller. Not only did it achieve fame for its revolutionary 3D graphics, but it became the standard test of IBM compatibility on the dozens of different copycat clone PC's which flooded the market created by IBM. It was great publicity for IBM and Microsoft, but nobody really noticed Sublogic, who were the real brains behind it.

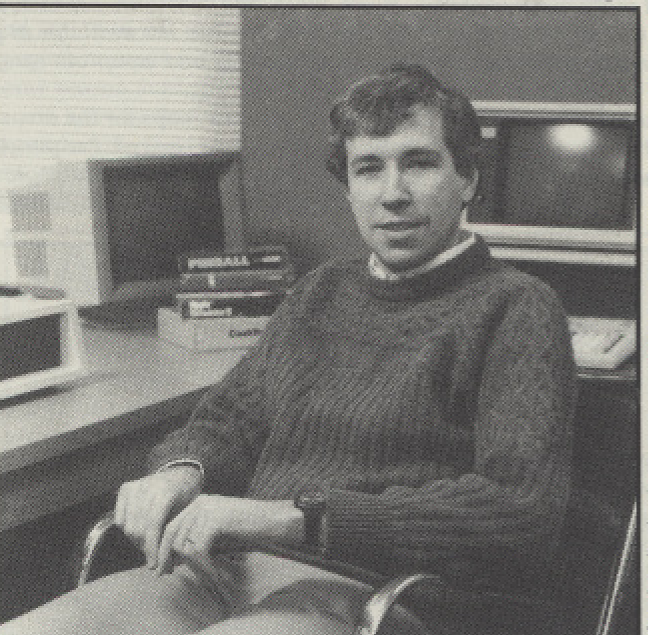
At around this time true home computers were appearing in quantity. Atari's original 400 and 800 machines were selling well, along with several others, and Sublogic pitched in to capitalise on this new market. They pushed these machines to the limit by bringing out an improved version of Flight Simulator for them, named (in a flash of inspired originality) Flight Simulator II (FS2). It was this program running on a 48K Atari 400 which led to my hopeless addiction to flight simulation programs, and into writing for Page 6. The program impressed me so much I felt I had to tell the Atari world about it, and my first ever magazine article, a review of FS2, was published in Issue 21.

In typically innovative fashion Sublogic had designed FS2 to use an extendable database of 3D scenery. The basic program was packaged with scenery data covering wide areas around New York, Chicago, Seattle, and Los Angeles. In 1985 they began releasing separate scenery disks to supplement this, with six disks covering the western half of the USA appearing in several computer formats including Atari 8-bit. Regrettably, I've never seen Atari versions on sale in the UK, and they're not easy to find in the USA even. Another six covering the Eastern half of the USA were planned, but I suspect they never materialised in Atari 8-bit format.

HIGH SPEED CRUISE

Also in 1985 Sublogic produced a brand new simulator - Jet. This was launched on the IBM PC as a 'fun' flight simulator in contrast to the obsessive completeness of FS2, and was more of a game than a serious simulation program. It portrayed two aircraft types, the land based F16 Fighting Falcon and the carrier based F18 Hornet. Jet was designed to be compatible with the scenery disks, which meant you could now explore the vast areas they depicted travelling at 1000 knots instead of the leisurely 130 knots of the Cessna or Piper light aircraft simulated in the earlier products. Although this program subsequently appeared on other computers, it never made it onto the Atari 8-bit machines.

One year later Sublogic launched another blockbusting product, their best yet. It was the third generation of Flight Simulator, designed to run on the Motorola 68000 microprocessor as found in the new generation of personal computers such as the Atari ST, Apple Macintosh, and Commodore Amiga. The increase in processing and graphics power of these machines enabled Sublogic to take a giant stride forward in terms of realism. Strangely though, they continued calling the new product Flight Simulator II even though it was far superior to previous versions. (See review in Issue 28.) Its extraordinary qualities, particularly in the graphics area, have clinched many an ST sale and helped boost the popularity of the machine in its early days.



Bruce Artwick - President of Sublogic and genius behind the programming of Flight Simulator II

Simultaneously, a specialised scenery design team headed by Mike Woodley and including artist Loren Kirkwood began producing much improved scenery disks. The first of these were two so called STAR disks, which did get released on the 8-bit Atari's. They covered part of Japan and the San Francisco area of California, and provided much greater detail than earlier disks. They included significantly more 3D features such as mountains, bridges, and buildings than before. (see reviews in Issue 28.) The San Francisco area scenery was further refined and incorporated into the ST version of FS2, taking pride of place as its bootup default and demo flight.

A NEW LAUNCH

In 1986 Bruce and Stu decided that Sublogic needed to grow in new directions, and launched an associated company called Actionsoft Corporation. This was to deal in simulation software which didn't have to comply with Sublogic's strict standards of innovation and realism, and could therefore be developed at lower cost and sold into the lower price market. In 1987 they released 'Up Periscope', a World War II submarine simulation; and 'Thunderchopper', a helicopter combat simulator - but again not in Atari format. Even so, they sold over one million dollars worth of software in their first year.

More recently, Sublogic themselves have launched new products for the ST. These include four super new scenery disks covering vast new areas in the north and eastern USA, Japan, and Europe. Yes, you can now even fly round the UK and land at airports in southern England! Also, three years after the original IBM version appeared, they've converted Jet onto the ST. Reviews of some of these products appear elsewhere in this issue.

CLIMBING TO NEW HEIGHTS

Flight Simulator III is now out on the IBM PC. This is really FS2 revamped for the PC, plus a few improvements such as additional aircraft types for you to fly; broken cloud in addition to the 'overcast' skies of FS2; the ability to leave smoke trails in the sky (as in the original Atari 8-bit version); and a night sky which includes stars - as recognisable constellations! There are rumours that there's an ST version in the offing, but at time of writing Sublogic hadn't confirmed or denied this. If it's true and I can get my hands on a copy, you'll be the first to know!

Sublogic also intend to release a complete control yoke (plus rudder pedals) for use with their flight simulators. Now that really will be something, provided they make it look and feel realistic and the software reacts realistically to it, of course. I don't doubt it will though, as Sublogic have an enviable reputation for quality and realism in their products.

Sublogic have come a long way since those early days at the university. Today, with around twenty five different versions of Flight Simulator behind them with combined sales of well over a million copies, they have much to be proud of. But it's not over yet - the project continues! Their dream is to create a flight simulator which is indistinguishable from the real thing, but turning dreams into reality can become a nightmare - especially in the cutthroat world of home computing. Hitherto, they've been undisputed kings of home computer flight simulation, however there are now other companies snapping at their heels, particularly Spectrum Holobyte and Digital Integration with their incredible F16 simulators. Rumour has it that Microprose too are about to launch a spectacular new simulator for the ST, so Sublogic had better watch out.

But who can predict what the future will bring? If hardware development continues at its present breakneck pace I'm sure they'll try their hardest to fully exploit it, and eventually come close to realising their dream. Just think what they could do with a transputer, 68030, or 80486 based computer if these superchips ever get into widespread use!

Sublogic software has probably given me, along with many thousands of other Atari users, more pleasure than any other p[iece of software I own. Like flight simulation fans the world over I've spent countless enjoyable hours with my head in the clouds and fingers on the keys, exploring the simulated world Sublogic have created. I wish them every success in pursuit of their dream. I hope they find it.

by John S Davison

SUBLOGIC's

Flight Simulator II

SCENERY DISKS

There are now five scenery disks available as accessories for the ST version of Flight Simulator II and Jet as well as several available on the XL/XE. They're generally of the high quality seen in the San Francisco area included on the original FS2 disk, and most of them introduce some unique new features. The main improvements are in two areas: there's now a 'generic' background which shows a patchwork quilt effect of fields rather than the plain green of the older scenery; and there's more 3D detail than before in the shape of buildings, bridges, and areas of special interest.

The basic scenery is well covered, with most main roads, railways, rivers, lakes, and coastlines depicted so accurately you can actually identify them if you have suitably detailed maps. I find the Collins Road Atlas of the USA ideal for this. It's available at good bookshops for £6.95. Although the elevation of the ground generally varies correctly, there aren't many well defined hill and mountain ranges, which is a great pity as I enjoy flying amongst the mountains.

All are supplied in the usual Sublogic packaging containing a disk, a set of overview maps for the areas covered, and a set of pre-punched A5 pages containing instructions on how to use the disk, plus plans and details of each airfield covered. Pre-punched divider pages with index tabs are supplied, so you can file all your scenery material together in a three ring A5 binder, also available from Sublogic if required.

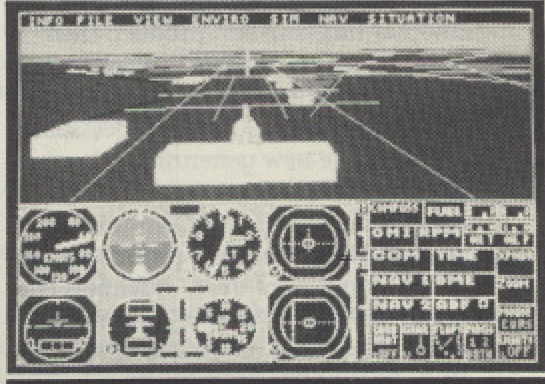
DISK 7
WASHINGTON TO MIAMI

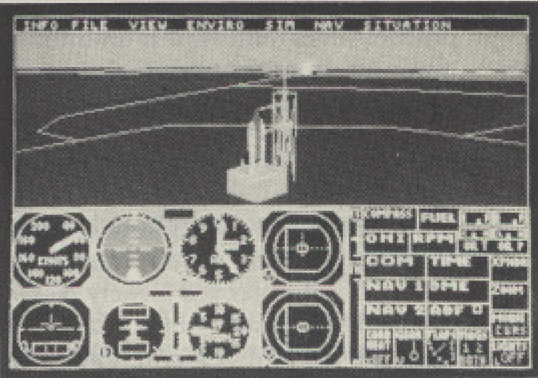
This disk covers a VAST area, from just below New York in the north, through every state on the east coast of the USA and right down to Key West at the extremity of the Florida Keys! It even covers the Bahamas, so you can put in some over-water flying hours. You can also do some really long flights, for example from Boston in the north (included on the original FS2 disk), down through New York, then cross over onto this new disk and continue on down into Florida.

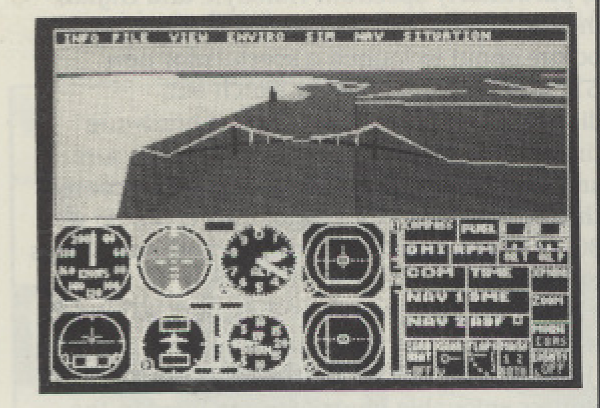
The area is split into four separate sections, each covered by its own map. There are 140 airports to visit in all, ten of them with Instrument Landing System equipped runways, and seven with ATIS radio communications. There are masses of VOR and NDB radio navigation beacons, far too many to count in fact, so navigation is easy - even out to the Bahamas. As a bonus the documentation contains 'approach plates' for ten major airports, allowing you to fly real instrument approach patterns just as in real life!

Detailed scenery showing buildings and other 3D structures is limited to several localised areas. In Washington DC you can see most of the famous landmarks including the White House, Capitol, Washington Monument, Lincoln Memorial, the Pentagon, and others. At Cape Canaveral you see the Shuttle on the launch pad, the Shuttle landing strip, the massive Vehicle Assembly Building, and a row of launch gantry towers. Finally there's Miami, represented by a few skyscrapers.

Overall, this is a terrific disk with enough in it to keep you busy for months!







DISK 11
LAKE HURON AND DETROIT

Once more a huge area is covered, this time in the Great Lakes region and extending well up into Canada. It joins the Disk 9 area in the north west and its south east corner almost joins the north west corner of the New York area supplied on the original FS2 disk, so again there's scope for very long flights. There are 83 new airfields, but this time only two are ILS and ATIS equipped. VOR beacons are plentiful, but there are no NDBs this time.

Special 3D scenery details include Detroit's Ambassador bridge (especially attractive at night), the massive buildings of the Renaissance Centre, and Tiger Stadium. Pittsburgh has several interesting bridges and buildings, but the best area has to be the Niagara Falls. Daredevil pilots can actually fly up the Niagara Canyon below the level of the surrounding land, UNDER the Rainbow Bridge, past the American Falls and up and over the Horseshoe Falls, passing the Skylon tower as you climb away! Another interesting challenge is landing the Lear Jet at Johnstown, whose airport nestles amongst a few of those rare mountains.

Other new features on this disk include other aircraft. You'll find gliders soaring in several locations and a hot air balloon aloft near Grand Lake in Ohio. They don't actually move, but it's good to see you're not alone in the air.

This is another good disk. It's worth buying just for the Niagara Falls scenery, but has much more to offer besides.

reviewed by
John S Davison

DISK 9
CHICAGO, ST. LOUIS, CINCINNATI

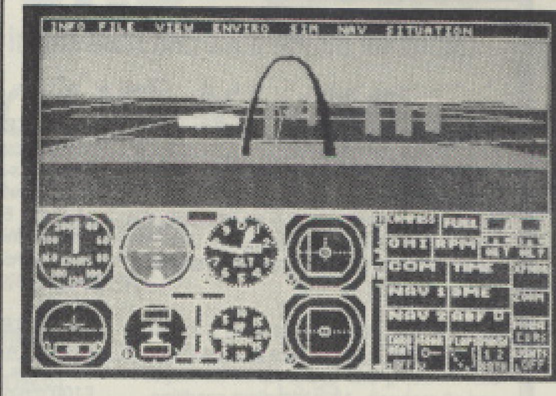
This one's only just been released, and is unique in that it includes some reworking of an area supplied in the basic FS2 package, namely the Chicago area. This includes 55 airfields, over twice as many as the original and scattered over a much wider area. Chicago now has nine recognisable landmark buildings, including the Adler Planetarium which sits right next to the runway at Meigs field. Eight airfields have ILS, twelve have ATIS, and ten have a new feature called VASI - the Visual Approach Slope Indicator. This is a system of coloured runway approach lights, which change colour if you deviate from the correct approach path - a great help if your landing skills aren't what they could be!

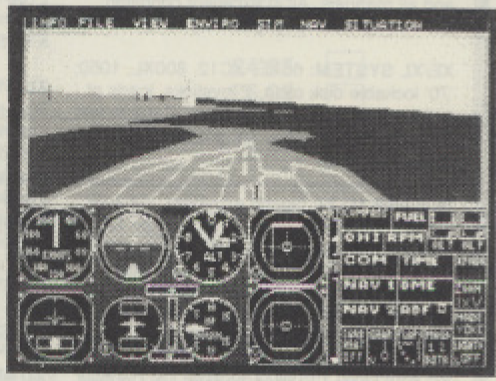
The St. Louis area has 70 airfields, seven with ILS, five with ATIS, and seven with VASI. St. Louis itself has a few buildings and the famous Gateway Arch, which you can fly through if you like to live dangerously! The Cincinnati area has 32 airfields, none of which have ILS, ATIS, or VASI. Cincinnati itself has very few buildings, but Riverfront Stadium is shown.

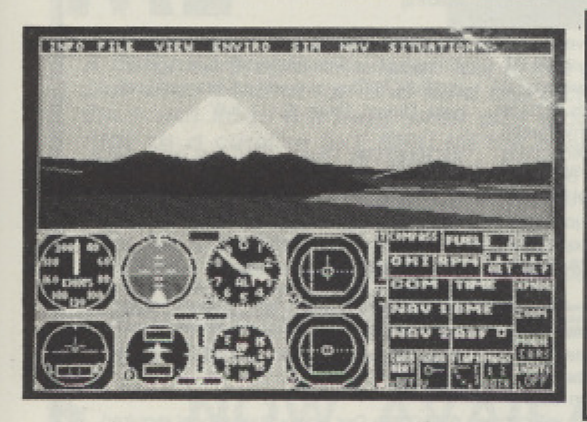
All major rivers on this disk are represented by coloured surfaces rather than vector lines. Some are very detailed and can be followed for long distances, for instance the Mississippi, Ohio, and Illinois rivers. There are many lakes too, from the gigantic Lake Michigan down to manmade lakes. There are around thirty mountains and mountain clusters in the Allegheny region, but they're not as well defined as they might be. Don't fly into them though, they're VERY solid!

This disk joins with Disk 11 in the north east and Disk 7 in the south east, making it very easy to cross from one disk area to another. The whole region is peppered with radio beacons to help you navigate, including both VORs and NDBs. For some reason Sublogic have omitted to print many of the NDB's frequency details on the area map, so you have to find them by trial and error - very tedious. There's the odd bug too - just try landing at Ingalls Field and you'll see what I mean!

Yet again this is a super disk, with lots for you to explore.







JAPAN

This is probably the least attractive of the disks, unless you happen to live in Japan! It covers the Tokyo/Nagoya/Osaka areas, but has only 14 airfields, seven of which are equipped with ILS. There are radio beacons aplenty, both VORs and NDBs, and the package comes complete with eight instrument approach charts, as with Disk 7.

Tokyo is covered in some detail, highlights including Tokyo Tower, the Palace grounds, and the Shin Kansen 'bullet train' network. Geographic detail includes many rivers, lakes and mountains, including the magnificent snowcapped Mt. Fuji whose vast bulk dominates the landscape for miles around.

This disk isn't such good value as the others. Don't make it your first scenery disk purchase, as you may be disappointed.

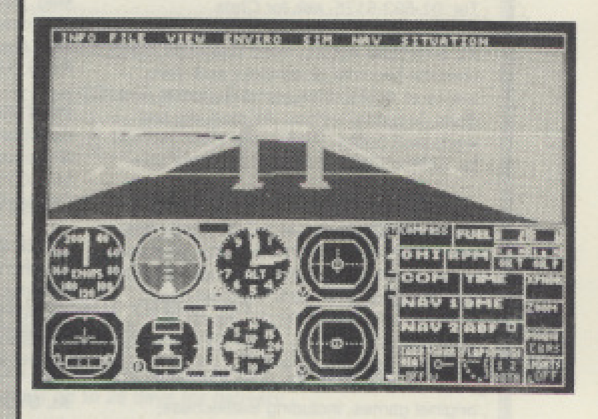
WESTERN EUROPE

At long last you can fly from UK airfields! This disk covers three major areas plus a bonus challenge. The UK is covered south of a line between Birmingham and Norwich, with 21 airfields included. You can fly over the rest of the UK (including Scotland, Ireland, and Wales, but there's very little to see. Northern France is also covered, again with 21 airfields, as is south west Germany with 13 airfields. Once more there are lots of VORs for navigation, but no NDBs for some reason. In all there are just three ILS equipped airports and only two with ATIS - a bit mean, I thought.

There are special areas of interest in all three main areas. London has many of the well known tourist attractions, like the Houses of Parliament and Tower Bridge. Further afield there's Stonehenge, and chalk figures (such as the Whipsnade Lion) may be seen in various locations. Paris too has its share of 3D landmarks, such as Sacre Coeur, Arc de Triomphe, Eiffel Tower, and many others, while Strasbourg's attractions includes three mountains south of the city. Over the border in Germany there are four cities with 3D detail, these being Munich, Nuremburg, Stuttgart, and Frankfurt. All have buildings of some description, while two of them have detailed mountains nearby. It's also possible to fly to Helsinki in Finland. There's just one airfield located there, and it's a l-o-n-g flight with nothing much to see on the way. From here it's possible to fly to Moscow and, like Mathias Rust, to land your Cessna in Red Square! But don't get too excited, the scenery here is VERY basic - Red Square is exactly that! The challenge is in finding Moscow, as there are no navigation aids to help you.

There are a few bugs on my copy of this disk. The Southampton VOR is about 60 miles from where it should be, and use of certain FS2 view modes cause you to be instantaneously transported back to Heathrow, the disk's 'default' airport. Also, certain sections of roads seem to be missing in places, annoying as it happens in the area where I live!

In summary, the disk is good value and you should have lots of fun trying to pinpoint areas of personal interest, like the location of your own home, for instance.



If your interest in FS2 is flagging, buying one or more of these disks is a sure way to rekindle it. There's so much to explore you'll be kept busy for months, even if you use the Lear Jet as your exploration vehicle. And don't forget you can also use them with Sublogic's own Jet program if you want to explore them even faster! Overall, I'd rate Disk 7 as being the best value, so buy this one first.

They may sound expensive at nearly £20 each, but you can get them cheaper if you shop around. Whatever the price you pay, I think you'll agree they're worth every penny when you discover the additional interest and enjoyment they bring to your Sublogic flight simulators.

SUBLOGIC AVAILABILITY

The Scenery Disks and other Sublogic products should be available from your local dealer but two companies who specialise and hold good stocks are STRATEGIC PLUS, P.O. BOX 8, HAMPTON, MIDDX, TW12 3XA. Telephone 01 979 2987 and COMPUTER ADVENTURE WORLD, Bank Buildings, 1A Charing Cross, Birkenhead, Wirral, Merseyside L41 6EJ. Telephone 051 666 1132

Most of the Scenery Disks and the Flight Simulator program are available for the XL/XE but are extremely difficult to find. Strategic Plus tell us they no longer stock these products for the 8-bit.

SUBLOGIC themselves can be contacted at First Floor, 35 Piccadilly, London W1. Telephone 0494 728439

CONTACT

FOR SALE

ACTION!: Action! cartridge and manual plus Action! Disk Utilities. Offers invited. Also dead 800XL, anyone interested? Contact Phil on 091 232 1517

XL SYSTEM: 800XL, 1050 drive, 1010 data recorder, two joysticks, lots of software on disk including Star Wars, tapes, cartridges and all manuals. All in excellent condition. £170 o.n.o. Tel. 0865-821110

XE/XL SYSTEM: 65XE, XC12, 800XL, 1050, '70' lockable disk case, 2 joysticks, loads of software, all manuals and mags. £300 or will swap for Amiga A500. Tel: 0222-628125, ask for Richard

ROLAND MT32: Sound expander, ideal for ST. 32-note polyphonic, 8 voices from 128 plus 16 drum samples and digital reverb. £325. Also 8-bit software - Visicalc, File Manager+, Synfile, Syncalc, Superscript, DOS XL, Trivial Pursuit & Gauntlet - Offers. Tel: 0702-610424 after 6.30pm

XE SYSTEM: 130XE, 1050 and US Doubler, Printer I/F, 1010 tape deck, Trackball, Touch Tablet, Mouse, Languages inc. T/Basic, Assem/ed, Forth. 'C', S/ware originals on disk and tape, PD software, books inc. Map/ Atari, Tech notes, all 'Atari User', all 'Page 6' since Vol.1 19, 'Monitor' mags, etc. Any reasonable offers for anything. Phone Simon on: 0438-359714 (Stevenage)

XL SYSTEM: 800XL (Rev C), 1050 disk drive, XC12 cassette, joystick, all boxed. Many games on cartridge, disk & cassette, £200. Contact Ray Martin on: 0277-354552.(Essex)

XL SYSTEM: 800XL with 1050 disk drive plus over 100 games, disks in container, Atari joystick. £170 o.n.o. Phone: 0256-58669

XE SYSTEM: 130XE, XC12 cassette recorder & joystick, 20 games, programming manuals and magazines, all for only £40. Tel: 01-593-6175, ask for Chris

XL SYSTEM: 800XL, 1050 disk drive, 1010 cassette recorder, 2 joysticks and many issues of Atari User. Lots of cassettes and disks, including utilities. All manuals and leads plus books. Worth over £400, will sell for £200 o.n.o. Tel: Flint 61850 after 5pm

PC3 HD COMPUTER: 640K cpu, 1x30 Mbyte Hard Disk Drive, 1x5.25 floppy disk drive, 1xPC17 124 Mono Monitor, plus software. Just 6 months old and under manufacturer's warranty. Price £750 (cost new £1091). Tel: 0597-3306 (24 hours) or 0656-771177

1040 ST SYSTEM: As new plus 150 boxed original games, including Battlechess, Xybots and Vindicators. Would consider splitting. Offers please. Also 8-bit clearance - 800XL, cassette recorder, 15 cartridge games, various cassettes and disks including Omnitrend's Universe. Would consider splitting. Phone 0787-71774 after 6pm and ask for Paul

1029 PRINTER: Has box, leads, manual, spare ribbon and printer dump software. Good for first time printer buyer. Excellent value at £75 o.n.o. Contact Dave after 7pm on 0652-34161

XL SYSTEM: 800XL, 1050 disk drive, 1010 tape recorder, 1029 dot-matrix printer with spare ribbons. All in excellent condition with original boxes and manuals. Many software titles on disk/tape, 3 cartridges including Atariwriter word processor and many Atari User magazines, £350 o.n.o. Tel: 0352-58831

MONO MONITOR: Nine-inch hi-resolution. £30 o.n.o. Contact Jon in Bognor Regis on: 0243-830564

XL SYSTEM: 800XL, 1029 printer, 1050 drive, Microsoft Basic 2 cartridge plus manuals, books and software, all in good condition. Software comprises of Atari Writer, F-15 Strike Eagle, Draconus. Books include Programming The 6502, Compute!'s Third Book of Atari. All for £250 o.n.o. Tel: Dave Evans on Slough 27418 (evenings)

XE SYSTEM: 65XE keyboard, datacorder and £50 worth of software. Hardly used and still in box. All in excellent working order. £100 o.n.o. Contact: Garry Crawford, 61 Kenmount Drive, Kennoway, Fife, Scotland. KY8 5LS

XL SYSTEM: 800XL, 1050 disk drive, 1010 tape deck, tape-to-disk/disk-to-disk utilities. Tutorial tapes including workbooks, 5 ROM's including Track & Field and Controller. Loads of software on tape and disk, including Gauntlet and Solo Flight - both on disk. lockable disk box and 2 joysticks. Must go as bundle, £150. Tel: 01-300-9812

XL SYSTEM: 800XL with 1050 disk drive, 1010 tape recorder, over 500 games, B/W TV, £200. Tel: 0623-648096

XL SYSTEM: 800XL, two 810 disk drives, all completely overhauled. Archiver/Editor chip. Printer interface module. 230 professional software titles on disk and cartridge worth over £4500 including arcade, adventures, business, utilities, etc. Substantial documentation including De Re Atari, Atari Word Processor Training Manual, etc., Analog, Antic, Compute!, Page 6 magazines. Huge system, £400. Phone David on (0753)-75483 for more info

XL SYSTEM: 800XL plus spare, Indus GT Disk Drive, 410 cassette recorder, extensive disk and cassette-based software. Dust covers, books, manuals and joystick, £250. Tel: 0472-750855

XL COMPUTER: 800XL with 64K, perfect condition in original box, £50 o.n.o., will consider exchanging for a printer. Tel: 0702-467515 and ask for Graeme

ST SYSTEM: 520 STFM with double-sided 1 Meg. internal drive. Immaculate condition. Few disks and manual, only £175 for quick sale. Buyer collects. Dave, 85 Hawthorn Road, Kingstanding, Birmingham B44 8QT

PRINTER INTERFACE: For XL/XE, lots of books and mags (too many to list), blank and unused disks, disk copier. Send SAE to Mr.J.C.Hales, 2 Louis Dahl Road, Burgh Castle, Great Yarmouth, Norfolk NR31 9QT

600XL SYSTEM: 16K computer with power supply. Very good condition, £20. Also assorted software (mostly games, budget and full priced). All original. Phone: 09282-2243 or write to R.A.Evans, 42 School Lane, Elton, Chester CH2 4LN

XL SYSTEM: 800XL complete with disk drive, cassette recorder, joystick and games. All boxed, £165 o.n.o. Tel: 01-207-0926 (Steve)

XL SYSTEM: Complete with 1050 disk drive, 1029 printer, 2 joysticks, 410 tape recorder, B/W monitor T.V. (12 inch), all boxed with manuals and loads of mags. Software includes Mini Office II and Jumbo Jet Pilot, £200 o.n.o. W.M.Hughes, 94 Roseberry Avenue, South Benfleet, Essex SS7 4JG

XE SYSTEM: 65XE with over £350 of software, two joysticks, XC12 datacorder plus B/W T.V. with eight pre-set stations, some cartridges. Bargain at £200 o.n.o. (Buyer collects). Tel: 0642-456879 between 3pm and 5pm, Mon to Fri

XE SYSTEM: 130XE with XCII data recorder, 1050 disk drive, joystick, selection of 40+ games on tape/disk/cartridge. Fully working and in excellent condition, sold only as a package, will not split, £140. Tel. 0293-771094

SYNTHESISER/KEYBOARD: Casio CZ 230-S, 100 voice multi-timbral synthesiser, full midi features including programmable voices and pitch bend, £120 o.n.o. Also Casio CT-640 five octave full size keyboard, 30 patches including 49-piece drum kit, 3-channel midi split makes this excellent for use with sequencing software, £220 o.n.o. Contact S.G.Lilgert, Main Street, Helperby, York YO6 2PS

XL SYSTEM: 800XL, 1050 disk drive, XC12 cassette recorder, 1027 printer, handbooks, instruction booklets, disk, cartridge & cassette games, £150. Ring 0482-640706 after 5pm weekdays

XE SYSTEM: 65XE which includes datacorder, keyboard, joystick, £150 worth of software, books, etc. The lot for £90 o.n.o. Contact: Garry Crawford, 61 Kenmount Drive, Kennoway, Fife, Scotland KY8 5LS

XL SYSTEM: 800XL, 1010 recorder. Good condition with all leads, loads of games and good manuals, £40. Tel: dave on 05242-72007

XL SYSTEM: 800XL, 1050 drive, leads etc., software including Silent Service and Leaderboard, offers around £150. Tel: Steve on 061-790-6288

XE SYSTEM: 130XE with dust cover, 2 x 1050 disk drives - both with Happy/US Doubler modification, read/write switches, 80 column dot matrix printer with loads of paper and interface. Over 160 disks, many games and utilities with full instructions, Mini Office II, Homeword, Visicalc, Printshop, B-Graph, to name just a few. Many books on programming, magazines (Atari User), 2 x joysticks, original boxes available, £450 o.n.o. the lot - NO SPLITS. Contact Andy on 0978-750826 after 7pm

XL SYSTEM: 800XL, 1050 disk drive, 1010 cassette recorder, graphix AT printer interface, masses of disk and tape software (games & serious), books and Atari User magazines. Offers around £200 but will consider splitting. Phone Martin on 0438-351156 after 6pm or at weekends

XL SYSTEM: 800XL, 1050 disk drive, 1010 cassette, over 40 full disks, every Atari User except one, lots of commercial games on disk/cassette. Will not split, £250. Tel: 025-485-3863 after 6.30pm. Preston area

XE SYSTEM: 130XE with joystick and over £200 of games software, mags, Page 6, Atari User, boxed and as new, £155 o.n.o. Phone: Marc on 0634-685474

MAPLIN WORDMAKER: Speech synthesiser (uses stored words on ROMs for a better quality speech synthesis), £26. Logic Probe for hardware fault-finding, £6. Tel: 0502-566026

XL SYSTEM: 800XL with Indus GT disk drive, 1027 printer and software, £140 o.n.o. Tel: 0753-853166 (Evenings)

XE SYSTEM: Compatible with most software and hardware from XE/XL systems, XC12 cassette recorder, joystick, games, posters, magazines, mail-order catalogs for games, instructions for software, Flight Simulator 2 cartridge, manuals, 4 months guarantee. Computer in good condition but unboxed and buyer would need to collect. Phone: 041-552-3477

DISK DRIVE: 1050, boxed as new with £300 worth of software, £100. Tel: 051-339-8334

PLEASE TRY AND KEEP YOUR CONTACT NOTICES AS SHORT AS POSSIBLE TO ENSURE THAT YOUR NOTICE IS INCLUDED

WANTED

CASSETTE DECK: For Atari 800XL - must be in good condition. Will pay well. Tel: 0533-417779 or contact Russell Garner, 41 Severn Street, Leicester. LE2 1BN

PM INTERFACE: If anyone has this program by XLENT software, please contact me. Please state price, or will swap PM Icons, etc. Steve Trice, 120 Duck Lane, Eynesbury, St Neots, Cambs. PE19 2EQ. Tel: 0234-41445 (daytime)

8-BIT LITERATURE: Have you got any unwanted books or magazines? Yes? Then please send them to Czeslaw J. Mrall, Rolna 4, 85-845 Bydgoszcz, POLAND

ASTEROIDS!: Please has anyone got a copy of Asteroids on ROM cartridge (8-bit) which they would be willing to sell? If so, please contact Brian Wells on 0452-20141 (evenings/weekend)

DISK DRIVE: Suitable for 48K Atari 800 computer. Must be in good condition. Any reasonable price paid. Phone Derby (0332)-761831 after 6pm and ask for Sukhraj

PRINTER INTERFACE: For Alphacom 42 printer to use with 800XL. Phone 0235-817670 or write to: 15 Warner Crescent, Didcot, Oxon. OX11 8JY

XE SYSTEM: 130XE, 1050 disk drive, 1029 printer, XC12. Color Monitor, business, educational & simulation software. Any or all! Tel: 0302-538547 after 5pm

MAGAZINES: Page 6 - issues 1 and 4 to 7 inclusive, UK Atari Computer Owners Club Magazines - issues 1 to 6 inclusive. Reasonable price paid. Write to Paul, 17 Spring Road, Clifton, Shefford, Bedfordshire SG17 5RE

PRINTER: Dot matrix/Daisywheel required for Atari XL/XE. Good condition only, preferably accepting single A4 sheets though not essential. Please write with full details to: Mr. J.C. Stockport, 19 Heather View, Skipton BD23 2SD

MAC/65: Help with same or its manual. Ring Tommy on Horwich (0204)-690259 or write to: Tommy R.O.T., Midway C.B. Club, PO Box 3, Horwich, Bolton, Greater Manchester

MUSIC ADD-ONS: Cassette/cartridge software and hardware for 8-bit system, e.g., replay sampler, etc. Phone: 09282-2243 or write to R.A.Evans, 42 School Lane, Elton, Chester CH2 4LN

COMPUTE! BOOKS: First, Second and Third Books Of Atari. Must be in good condition. Ring Brian on 021-742-8038

GET IT RIGHT!: Can anyone let me have a copy of this? I don't know where I can get hold of a copy. Phone 0827-894978 (I will supply a blank tape/disk)

ATARI USER BACK ISSUE: July 1986 edition in good condition. Phone: 01-852-0976 after 5pm

PREPPIE: I want a cassette version of this game. Can anyone help? Eric Denning, 17 Grange Road, Albrighton, Wolverhampton (090-722-4334)

EASTERN FRONT SOURCE CODE: For 8-bit from APX. Must be disk based and include full documentation. Please contact me on Reading (0734) - 867891 evenings, or write to 7 Christchurch Road, Reading, Berks RG2 7AA

DISK DRIVE: 1050 or XF551, must be cheap and working. Write to David Sharpe, Shannonville, Clones Road, Monaghan (Tel: 047-82342)

More CONTACT on page 50

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See PAGE 6 Magazine Issue 37 page 29 for further details of this super program. Tape version has all the facilities and fun of the disk version except that the number of horse databases is limited. *AVAILABLE EXCLUSIVELY FROM PAGE 6*

CONTACT extra

WANTED

LISTINGS NEEDED: Does anyone have the listing for Ian Finlayson's Cassette Database from Issue 37 of Page 6? I would be willing to give £1.00 for the magazine. Photo-copy of listing accepted. Phone: A.Marsh on 0303-40669

DISK DRIVE: 1050 disk drive wanted. Tel: 0753-853166 (Evenings)

PENPALS/HELP

LISTINGS HELP: Can anyone help me with the following listings from previous Atari Users (on cassette please): MCQ Test, Get It Right II, Melody Maker, Scrolly Text Editor, and has anyone got Turbo Basic on cassette? Write to Andrew Hawkins at 57 Merridale Road West, Pennfields, Wolverhampton, West Midlands. WV3 0RJ

ADVENTURE HELP!: Can anyone tell me how to use the tea in Hitch-Hiker's Guide To The Galaxy for the ST? Any other information on this game would be very much appreciated. Please write to: Tim Herman, 25 Prince Edward Road, Billericay, Essex

ALL 8-BIT USERS: Please write for help and FREE monthly newsletter. Any age group welcome. Programs from users welcome. Write to: Mark, 23 Saturn Close, Lordshill, Southampton SO1 8BD

POLISH XL USER: Owns an 800XL and 1050. Wants to exchange experiences in work with 8-bit machines. Czeslaw J. Mrall, Rolna 4, 85-845 Bydgoszcz, Poland

8-BIT USERS: I have a 130XE with a D/D Disk drive and an Epson printer. I would like to hear from any other 8-bit users to swap hints & tips. I have a massive collection of software titles, including adventures, utilities and arcade games. All letters answered. Write to: 'Mick the Fish', 7 Foundry Mill Crescent, Seacroft, Leeds 14, Yorkshire, or phone on 0532-640307

TURKISH XL USER: My name is Oguzhan. I have an 800XL, 1050 disk drive and XC12 tape unit. I am interested in all types of software, adventure games, etc. All letters answered. Write to: Oguzhan Imrek, Mektep Ced. Zafer Sok., Zafer Apt. No.15/7, Kugukyalilist, TURKEY 81570

AUSTRALIAN XL USER: Humanist (25) happens to have a 64K XL, 810, 1050 and a very non-standard printer. I am interested in games design, programming and playing (especially Ultima or Alternate reality). I am very interested in programming techniques. I also love Japanese animation - but NOT like Transformers or Mask, if you know what I mean! - Everything But The Girl, Peter S. Beagle, J.R.R. Tolkein, movies, Black Adder and the British Atari scene. So if you are somewhat similar, live in the vicinity of Great Britain and want to be my penpal, then please send your particulars on a postcard to: Glenn Miller, 57 Parkes Lane, Terranora, NSW 2486, AUSTRALIA

XL/XE PENPAL: Anyone out there fancy writing to me? I own a 130XE, 1050 drive and a 410 cassette deck. I like games, utilities and demos. I am 18-years-old and would like Male/Female users of about the same age (but I'm not bothered) preferably in the Bedford area (but again not bothered!). Contact: Mark Elliott, 20 Connaught Way, Brickhill, Bedford MK41 7LB

ADVENTURERS!: Contact required with 8-bit/ST adventure players throughout the World. All letters answered, considerable game help available. Write to: John R. Barnsley, 32 Merrivale Road, Rising Brook, Stafford, Staffs. ST17 9EB England

TURKISH XL USER: To all XL owners with disk drive. I'm Yuksel Turkal (22 years.) and I have a 800XL, 1050 disk drive, 410 tape unit, 1029 printer and many disks. I am interested in all types of software. I wish to exchange my programs with everyone around the world. Write to: Yuksel Turkal, Sakarya M., dalyan S., 8 Cbeci/Ankara, TURKEY

8-BIT USERS: I would like to hear from any 8-bit user. I have a 800XL with 1050 drive. I would like to swap hints, tips, etc. I am also seeking a Gremlin or Lazer or anything similar. All letters answered. Write to: Mr. R. Robertson, 19 Littlebury Green, Basildon, Essex SS13 1PA or phone (0268)-584006 in the evenings

XL/XE PENPALS: Contact wanted with any 8-bit users still out there, equipped with disk drive, with a view to exchanging hints & tips, etc., on programming and software. Mark Jones, 48 Maendy Way, W.Pontnewydd, Cwmbran, Gwent NP44 5HW

ST USERS: Wanted to swap hints, tips, etc., all letters answered. Contact: R.Chapman, 19 Coleridge Close, Leyfields, Tamworth, Staffs B79 8DS

XE PENPALS: I have got many cassette games for the 65XE with XC12. Would you like to exchange some of yours for mine? Please write with list. All letters answered. Mr.Jean-Pierre (Staff), 38 Lancaster Gate, London W2 3ND

XL USER: My name is Peter and I have a 800XL and 1050 disk drive with laser and over 200 disks. I have Forth, Pascal, Turbo etc., and would like to contact any male/female of any age to exchange info. Write to: 10 Sunningdale Avenue, Acton, London W3 7NS

8-BIT PENPALS: I have an 800 (48K), 1050 drive and 1010 tape. I would like to contact anybody with an 8-bit and disk. I like almost all types of software especially graphics. I also have a Koala Pad. Write to: Gordon McKeown, 1 Tye Gardens, Swindon, Wilts SN5 6ES

XE PENPALS: I would like to hear from anyone who has a 65XE/130XE. I have a 65XE and XC12 datacorder and various software hints & tips. If you are interested please write to me with hints and tips on software. ALL letters answered, write to Lee Greenfield, 3 Hadley Close, Elstree, Herts WD6 3LB

HELP!: I would like to hear from anyone who has an 800XL (or similar) along with a 5.25 drive and printer. I once owned an 800XL myself and have put data onto some disks which I would now like to see in print. I still have my copy of Mini-Office II and the relevant data disks. Naturally, I will pay for this service should you wish it. Only constraint is not TOO far please! Write to: Mr.G.Hazel, 7 Church Road, Harefield, Middlesex UB9 6DW (Thanks!)

8-BIT PENPALS: I would love to hear from anyone in the World to swap hints and tips, etc., all letters answered. Write to: Andy, 25 Malcolm Avenue, Clifton, Swinton, Manchester M27 2HF, ENGLAND

CONTACT is FREE of charge and may be used by any genuine Atari enthusiast for contacting other owners. Any notice may be included except those offering software only for sale or exchange or those offering items for sale commercially. The Editor reserves the right to omit any notice received at his discretion.
Send your CONTACT notice to CONTACT, PAGE 6, P.O. Box 54, Stafford, ST16 1DR. Please write your notice on a separate sheet of paper, not as part of a letter.

UPDATE

CATCH DAY (ISSUE 39): What a pig! Anyone who typed in the listing will have discovered that it doesn't work. This listing has a weird problem that we have never come across before in six years of publishing. The original SAVEd version (on the Issue disk) runs perfectly but if you LIST that version to disk and then ENTER it, it no longer runs throwing up errors that make no sense at all! If anyone knows why, we would like to know but in the meantime reader Jim Howarth has come up with a fix that works, just don't ask why! Try the following:

1. Put a REM at the beginning of line 976
2. Change T$ in line 2105 to read F$

The above will get you a working program but Jim also suggests the following amendments to 'fine tune' the game.

Exchange the inverse bracket in line 275 for a T

Amend the random values in lines 2100 and 2105 to *10 and *20 respectively.

Change line 2110 to

```
2110 LB=LB+INT(RND(0)*6+1:F=F+1:RETURN
```

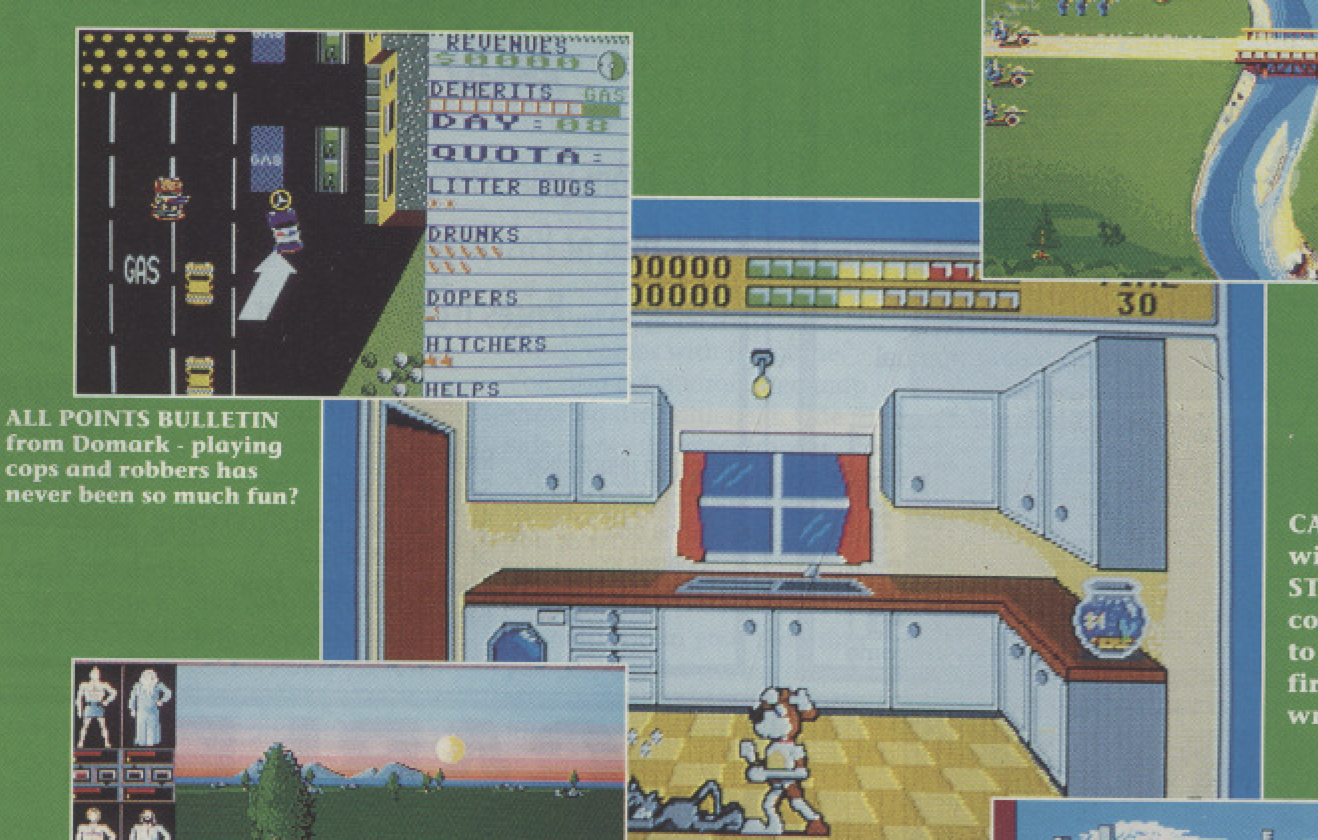
TURBO BASIC COLUMN

Gordon Cameron sends his apologies to Turbo fans for the lack of a column this issue. University commitments and several changes of address (leaving Gordon at one address and his 130XE at another!) meant that there was no time to get the column done. Back next time, promise!

The **ST FILE**

STOS COLUMN

Redefining the keyboard
Mini Slide Show

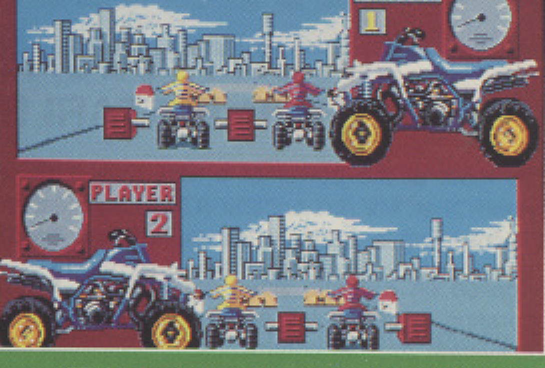


ALL POINTS BULLETIN from Domark - playing cops and robbers has never been so much fun?

NORTH AND SOUTH from Infogrames retraces four years of the American Civil War

CARTOON CAPERS - winner of Mandarin's STOS programming competition and soon to be released as the first official STOS written game

DRAKKHEN is the first role playing game from Infogrames



IRON TRACKERS - a two person arcade adventure again from Infogrames

ST NEWS

Infogrames seem to have a busy schedule ahead despite, it seems, now working from France once again (that's where all the info is coming from) with the launch of their Pocketsoft label which will bring you budget price (that means £9.99) versions of the Infogrames hits like CAPTAIN BLOOD, TNT, STIR CRAZY, MACADAM BUMPER, PHOENIX and TURBO GT. For some reason these games will only be available on double sided disks despite being originally issued as single sided disks. New releases from Infogrames include NORTH AND SOUTH a game based on the American Civil War and combining strategy, tactics and arcade. DRAKKHEN has been under development for over a year by a programming team of five people so it should be good. It is a role playing game based on a far planet where a strange island is growing at an alarming rate, the intrepid adventurers must discover the secrets of a new Genesis on the planet. Domark capitalise on the success of Trivial Pursuit with the release of PICTIONARY, the computer version of the popular board game. Of course there's no stopping Microprose who in their many guises now seem to have grabbed a large share of the games market. RAINBOW WARRIOR is a new unique computer game in which 'players conduct peaceful, direct actions to bring about a better world'. Wot, no blasting? ACTION FIGHTER is based on the Sega arcade game, four tough sections battling over land and sea. We are going to run out of room so here's just a list of others to look out for in the coming months under the MicroStyle, MicroStatus or Firebird labels - STUNT CAR RACER, TOWER OF BABEL, RAINBOW ISLANDS, ORIENTAL GAMES, RICK DANGEROUS, XENOPHOBE, RAT PACK, EPOCH, QUARTZ, SURVIVOR, MIDWINTER AND CONTACT. Wow, any room for other publisher's stuff on the shelves? Populous fanatics can have even more fun with the release by Electronic Arts of POPULOUS: THE PROMISED LANDS which has data for five new worlds. Activision also keep busy with GHOSTBUSTERS II planned for December and ALTERED BEAST in which you have to 'collect the mystical spirit balls from your slayed opponents'. Not sure what category that fits into! Also due are SUPER WONDERBOY and DYNAMITE DUX. Activision also have a flight simulator planned called BOMBER. Could be interesting. Time to go, look out for reviews of many of these games as (if?) they come in.

BORODINO and ARMADA

TWO CLASSIC WARGAMES FROM ATARI

Borodino is the first of a completely new concept in wargaming. The idea is to recreate what it would be like to be the historic commander of an army, playing only the role of one man (and not making decisions for anyone else in the army) and communicate with his subordinates in the same way as his historical counterpart (giving written orders, receiving messages, asking questions and so on)."

This was Dr. Peter Turcan's objective when he set out to produce Borodino, which recreates the major confrontation between the French and the Russians when Commander-in-Chief Kutusov made his last stand against Napoleon in 1812 to prevent the fall of Moscow. Dr. Turcan has succeeded admirably.

You can choose to play Napoleon, with 131,000 men (including 28,000 cavalry and 587 guns), or Kutusov, with 120,000 men (including 17,000 cavalry, 7,000 Cossacks, 10,000 volunteers and 640 pieces of artillery). Or you can play a two player version - even by mail if you wish - you can post the data diskette with the saved game!

But whichever way you to choose to play it you are restricted to the capabilities of the one character you have chosen. Although you can look in any direction you can only see what Napoleon (assuming you are playing him) would see - a couple of miles of 3- D landscape with the armies scattered across it. You can only send messages out in real time - your messengers have to ride across the battlefield to deliver the messages, which may be misunderstood or ignored, or indeed never arrive! The only other information you get is reports and requests from your generals and colonels - which often arrive too late for you to use - just like real life!

You enter your commands in English using a powerful adventure- style parser. Sample commands are: NEY ORDER YOUR ARTILLERY TO MOVE 1/2 MILE EAST. DAVOUT ORDER 2 INFANTRY DIVISIONS TO DEFEND THE WOOD 1 MILE NORTH OF YOU. EUGENE SHELL THE ENEMY CAVALRY 1 MILE NORTH OF YOU FOR 30 MINUTES. MONTBRUN, AT 6.30 AM GIVE SUPPORT TO NEY AND DAVOUT. EUGENE, FORM AN ATTACK LINE FROM THE NORTH FLANK TO THE PONTOONS LINKING WITH NEY.

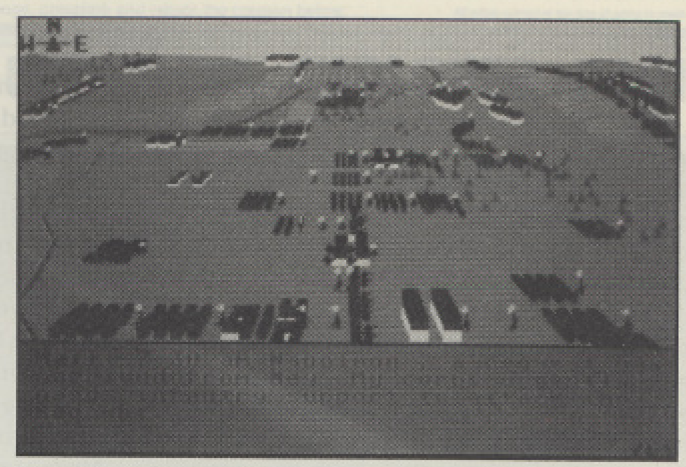
These, and many others, are all clearly explained in the detailed 64-page manual which comes with the game. You also get a laminated map showing the battlefield. One side shows the main moves which occurred in the actual battle, the other side is for you to record your current battle, using the specially provided pen.

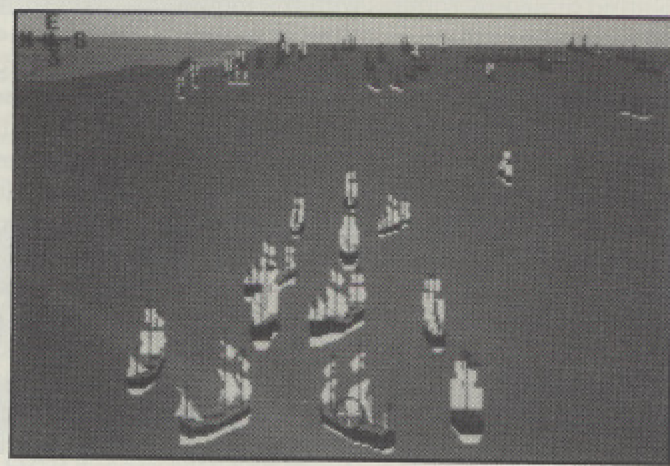
To help you in your planning you can use the mouse as a telescope to request detailed information about anything in sight. Once you have entered a set of orders the computer spends two or three minutes simulating the next quarter of an hour of the battle. Brief messages flash up to indicate the current phase, PLANNING, MOVING, FIRING, etc., then the 3-D view is redrawn.

The manual tells us that "the battle is fought to extremely detailed rules, similar to tabletop wargame rules." But in the spirit of the game, you, as Napoleon, just get to see the results!

Fortunately, for those who need a little more help, the game provides some 'cheat' modes which allow you to see all messages between the lesser generals (yours and the enemy's) and to view the battlefield from any position.

Armada is virtually identical in concept. It is 1588 and you get to play Lord Howard with 72 ships or the Duke of Medina-Sidonia with his Spanish Armada of 97 ships (there were more but the smallest ones are not implemented!). This is a little faster - half an hour of battle takes 1 to 2 minutes; screen redrawing is 5 to 10 seconds rather than 10 to 15 (water is easier to draw than land!); and there are lots of new commands which relate to sea battles: SIGNAL DRAKE, ORDER 4 SHIPS TO SAIL TO PLYMOUTH. CAPTAIN MOVE ALONGSIDE THE REVENGE. SIGNAL HAWKINS TO SAIL IN DOUBLE CRESCENT FORMATION. SIGNAL DRAKE TO SHADOW THE ENEMY TO THE SOUTHEAST.





Above - Armarda. Top - Borodino

SIGNAL HAWKINS, AT 2.30 PM TODAY ADOPT GRAPPLING TACTICS. SIGNAL FROBISHER TO BLOCKADE PLYMOUTH. And so on!

Armada lasts for five days (as opposed to Borodino's one) but there are SAVE facilities plus an optional two day battle for you to train on.

- ***GAMEPLAY*** *- excellent range of commands and parser - a well thought out and presented idea.*
- ***GRAPHICS*** *- good 3-D representation of the terrain and the armies or fleets - the only animation is an optional view of the cannon-fire - tiny clouds of dust when they hit.*
- ***SOUND*** *- None.*
- ***VERDICT*** *- If you are not a serious wargamer you may find it rather too slow and complex. But for those who want to play a REAL wargame, you won't get one much more accurate than this.*

Title:	**BORODINO and ARMADA**
Publisher:	**ATARI**
Price:	**£29.99 each**
Reviewer:	**John Sweeney**

ARCHIPELAGOS

exploring the land of a thousand islands

Archipelagos is quite a difficult game to review; people seem to either love it or hate it. It claims to be "completely new", "without violence" and to "defy classification", but sadly I cannot really agree with all of that. Anyone who has played Sentinel is bound to get a feeling of deja vu with the game mechanics. Like Sentinel and Virus it is set in a three dimensional scrolling landscape, which is done very well, but suffers in comparison in that all the land is flat. Pointing at nearby squares with the mouse will move you to them, pointing at spore pods sucks their energy out for you to use - very reminiscent of Sentinel!

Each of the 9,999 landscapes is a group of islands (ARCHIPELAGO: a sea abounding in islands, a group of islands - surely you knew that!) which you need to join together using the F1 key to build new land. Once they are joined you can destroy lots of big rocks and then blast your prime objective - the Obelisk! (Non-Violent?)

F2 gets you an overhead map of the whole archipelago so that you can plan your attack. Most of the maps are random groups of islands, getting progressively harder as you go along, but about twenty are detailed maps of Europe, UK, the Logotron Turtle, etc. which are rather fine.

To prevent you in your attempts to destroy the Obelisks there are a number of nasties after you. Arboreal Trees spiral up and down and move slowly towards you, covering the land with blood which destroys you at the slightest touch (Hey! I thought this was non-violent!). The Trees only move when they reach the bottom of their spiral, so they are not too hard to avoid.

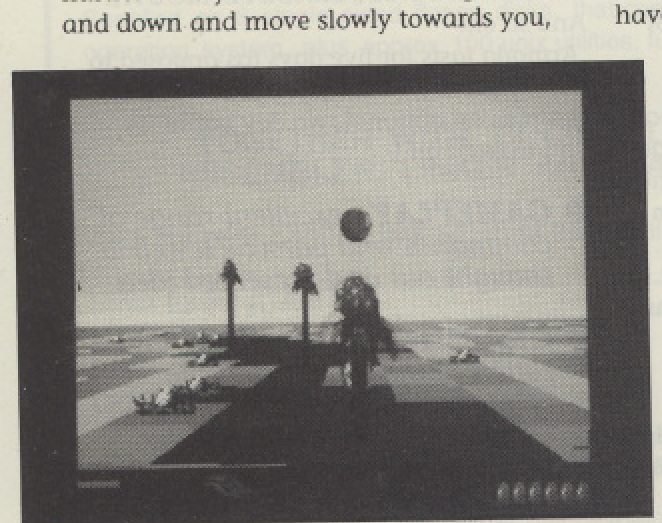
Necromancers wander around destroying the ground, usually in the most inconvenient places but fortunately they are fairly slow and dumb so you can lead them out to sea to waste time once you get the knack of it.

Blood Eggs hatch out to claps of lightning and either destroy their island or cover it in blood - since you are not racing against a time limit I usually sit out at sea until they have finished doing their thing then carry on with the game.

Lost Souls are little whirlwinds that wander at random - if they touch you, you die. These are the deadliest of your enemies as they move quite fast and give no warning of their presence. I found that a little frustrating - a proximity alarm to give you some warning of their presence would have been much friendlier.



'I found there wasn't enough challenge in the game'



Personally I found there wasn't enough challenge in the game. I got up to level 35 with only a couple of failures - usually caused by stopping to think on the main screen instead of the overhead map which pauses the game for you. I never really felt that I was getting enough adrenalin up to make it worthwhile from an action point of view, and there doesn't seem to be much mental challenge either - you just wander round until you find all the rocks. I heard someone say that it gets quite hard around level 4000, but I can't see myself bothering to play that far! Fortunately you can always restart at any level up to the highest one anyone has ever reached with your master disk. (Though this also means that anyone in the family can access the levels you have reached, and that your disk is liable to viruses since you have to keep the original master unprotected!)

You need to use the F1 key constantly to build new land - there must be a better way. Surely they could have achieved this with the mouse - or at least let you choose which key you want to use!

The supposed lack of violence is also a little frustrating - I would dearly have loved to be able to destroy one little %*&$%* Necromancer after he had destroyed my land bridge for the fifth time! You are surrounded by deadly enemies and all you can do is run from them!

- ***SIGHT & SOUND*** - *Excellent. The trees make for alien-looking landscapes, but may get a little tedious after you have cracked the first couple of thousand! Superb eerie music - probably the best part of the game!*
- ***GAMEPLAY*** - *Nicely presented, but I don't think they have managed to achieve quite the right balance of difficulty and interest*
- ***VERDICT*** - *Some people love it - but probably best to try before you buy - you have to be addicted to play more than a few levels*

Title:	**ARCHIPELAGOS**
Publisher:	**LOGOTRON**
Price:	**£19.95**
Reviewer:	**John Sweeney**

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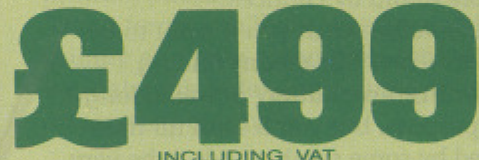
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4 Bringing it All Together

John S Davison concludes this beginners guide to the world of Midi with a look at some additional software and suggestions for audio recording of your newly composed masterpieces

In this, the final part of our beginner's guide to MIDI, we take a look at voice editing and music scoring software, and at setting up your own low cost home recording studio.

One of the most fascinating aspects of using a synthesiser is the production of your own unique sounds via customised voice patches. While it's true that most instruments you buy today have dozens (sometimes hundreds) of perfectly good pre-set sounds, there's nothing quite like inventing your own. To do this you have to be able to program the sound generating components of your synthesiser. Inexpensive home keyboards often have no facilities for doing this, so you're stuck with the pre-sets - something to bear in mind when buying one. Once again the low cost Yamaha PSS-680 home keyboard/synthesiser we've used as our example in this series demonstrates its good value by providing such facilities, although they're limited compared with more upmarket instruments.

Depending on the synthesiser you could have to set a HUNDRED or more parameters to define that unique sound, each one input as a numeric value via fiddly little pushbuttons and miniscule LCD/LED display on the synth's front panel. Trying to produce the sound you want this way can soon reduce you to a boss-eyed, gibbering wreck! So - let the ST do the hard work!

VOICE PATCH EDITORS

There are dozens of voice patch editors available for the ST, priced from around £2 for public domain programs to around £150 for top class professional quality software. They all work on a similar principle, using MIDI's System Exclusive facilities. They can upload the parameters of an existing sound from your synth, display them on your computer screen, change them, and download them to the synth again for immediate playing. Or you can start from scratch and just download a complete set of brand new parameters. Some synths, such as the Roland MT-32, can ONLY be programmed this way, having no front panel editing facilities.

Better yet, some software will display certain parameters in graphical form, displaying the 'shape' of the sound onscreen.

```
Desk  File  Casio  Patch  Envelope
INTERNAL.CZ: Original Int 2 (2)
CZ   Line Select: 1  2  1+2'  1+1'   Modulation: Ring  Noise   Vibrato: Wave: 1
DCO 1  Wave Forms  1  8              DCO 2  Wave Forms  1  8     Delay: 00
Step   1  2  3  4  5  6  7  8        Step   1  2  3  4  5  6  7  8   Rate: 00
Rate   86 65                         Rate   99 68                    Depth: 00
Level  28 00                         Level  33 00
S/E    S  E                          S/E    _  E                     Detune:
DCW 1  Key Follow: 0                 DCW 2  Key Follow: 0            -  +
Step   1  2  3  4  5  6  7  8        Step   1  2  3  4  5  6  7  8   Octave: 0
Rate   76 47 37 26                   Rate   76 47 37 26              Note: 00
Level  99 96 52 00                   Level  99 96 52 00              Fine: 06
S/E    _  _  S  E                    S/E    _  _  S  E
DCA 1  Key Follow: 0                 DCA 2  Key Follow: 0            Octave:
Step   1  2  3  4  5  6  7  8        Step   1  2  3  4  5  6  7  8   -1  0  +1
Rate   99 77 67 79 33                Rate   99 77 67 79 33
Level  58 99 91 59 00                Level  58 99 91 59 00
S/E    _  _  S  _  E                 S/E    _  _  S  _  E
```

One of several excellent public domain voice patch editors - this one for the Casio - others are avialable for Yamaha and other synths

You modify the sound by redrawing its shape - much easier than working with streams of numbers. If you're really stuck for ideas some programs will even randomise parameter values for you, in the hope of hitting on a usable sound by chance!

Once you've produced an acceptable patch you'll want to be able to use it whenever you wish, and this means finding somewhere to store it. Most synths have battery powered long-term memory banks for this purpose, but you'll soon fill these, and the RAMcard storage used by some synths tends to be very costly. Again, the solution lies with the computer. Most patch editors also include a librarian facility, allowing patches to be stored on disk, often grouping similar sounds together for convenience of later retrieval.

Patch editors are usually designed to work with specific makes and models of synthesiser. This dependency could be inconvenient as it means you could have to buy a new patch editor if you buy a new synth. However, 'universal' editors (such as Hollis Research's MIDIman, £79) capable of handling a range of instruments from different manufacturers have recently appeared - worth thinking about if you plan to expand your MIDI system in the future. Some of the best editors may be found in the Steinberg Synthworks range of software. They're expensive at around £100 a time, but are superb quality products.

Regrettably, I've seen no voice editing or librarian software for the PSS-680, not even public domain material. Editing isn't difficult as the PSS-680 has only 9 parameters to manipulate, but a voice library on disk would be very useful. If you know of anything, perhaps something you've written yourself, please write to me (care of Page 6) and I'll publicise it.

BE YOUR OWN MUSIC PUBLISHER

After sweating blood over your ST and MIDI keyboards for weeks you eventually produce a musical masterpiece (you think!). If it's any good you'll want other people to hear it or even perform it themselves, won't you? So why don't you turn your masterpiece into printed form as sheet music, or record it onto cassette tape that anyone can play on their Walkman or ghettoblaster?

by John S Davison

By far the easiest way to produce sheet music is to use a sequencer with built-in music printing facilities, or which interfaces to a separate score printing program. Remember that most sequencers use their own unique file format, so you can't just take any old sequencer file and expect it to work with any score printing program. You usually have to use programs from the same manufacturer, although some will read files from other sources. This messy situation could change in future with the advent of the MIDI File Standard, which is designed to make files interchangeable between MIDI based programs from different manufacturers.

Like sequencers, score printing programs range from the cheap and cheerful to professional level music publishing systems. The cheapest music printing facility I've seen is that contained in Activision's Music Studio. This is little more than a printer dump of what you see on the screen with no control over how it's printed, but at around £25 for the whole package you can't really grumble.

Midprice packages include Hybrid Arts' EZ-Score at around £130, which is designed to complement their EZ-Track sequencer. It gives much more control over the printing, but has limited stave handling. Dr. T's Copyist series of packages (from around £80) are also worth a look.

At the top end of the market are programs such as Steinberg's Master Score and C-Lab's Notator, but we're talking serious money here as these cost several hundred pounds apiece. However, they give the composer/arranger complete control over virtually all aspects of the printed output, and the results are superb - just like the sheet music you buy in the shops. Master Score is really a companion for Steinberg's own Pro-24 and Pro-12 sequencers, while Notator is a combined sequencer and score printing package.

Don't forget you'll also need a suitable printer. The minimum is usually an Epson compatible (graphics capable) dot matrix printer, although individual score printing packages may provide drivers for other types.

BECOME A RECORDING STAR!

The best way of showing off your masterpiece is to record it onto cassette. To do this you'll need to add a few items to your MIDI setup, in effect turning it into a mini recording studio. Now don't get alarmed about the cost, as you may already own the items needed!

Obviously, you'll need a cassette recorder. It doesn't have to be an expensive multi-track 'porta-studio' job, an ordinary domestic stereo machine will do. For best results it should have line inputs, so you can record directly from your synth without the need to use microphones. The PSS-680 has stereo line outputs originally designed to connect to an external amplification system, but is suitable for use with recording gear too. In my case I just connect these directly to my hi-fi cassette deck's line inputs with ordinary phono leads - and bingo - instant recording studio! Now, when you fire up the MIDI sequencer on your ST to playback your masterpiece you'll find you can record the glorious sounds you've created. They're real sounds this time, not MIDI data, so you can play them back on any cassette machine.

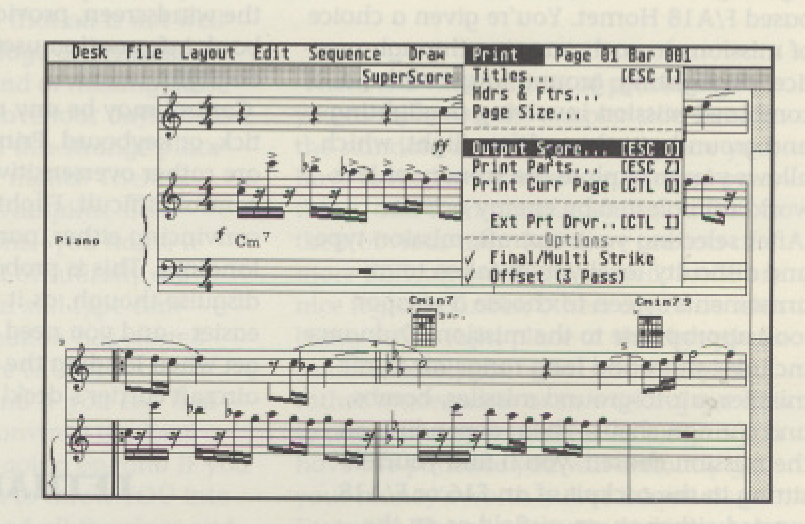
If you play the tape back through a decent hi-fi system you'll get a pleasant surprise. It sounds GREAT! The lesson learned is that a humble home keyboard like the PSS-680 can't realise its full sonic potential through its built-in amplification facilities, so the next addition to your studio should be a separate amplification system. If you can position your hi-fi near to your ST and synth then the problem is solved - just connect the synth's outputs to the Aux In on your hi-fi. Check that they match electrically first, though.

If you can't use your hi-fi consider buying a pair of powered hi-fi speakers, available for around £100 from companies like Wharfedale or Goodmans. These are good quality bookshelf speakers containing built-in amplifiers, and make ideal home studio monitors. If you can't afford any of these options, then try listening on a pair of good quality headphones. Again, if you've only heard your home keyboard play through its built-in speakers the improvement in sound quality will astound you.

If you add more sound sources to your setup, such as expander modules, samplers, or drum machines, you'll need to combine their outputs for recording purposes, requiring an audio mixer of some description. Very simple four channel mixers cost from around £20 from Tandy's, but you could pay hundreds of pounds for one with lots of channels and additional recording facilities, such as tone equalisation and sound positioning.

The sounds you make on your synth can be improved tremendously by judicious use of special effects such as reverberation and echo, so you might want to add an effects processor. Yamaha, Alesis, and others can supply these from around £150 for a box capable of producing several different effects.

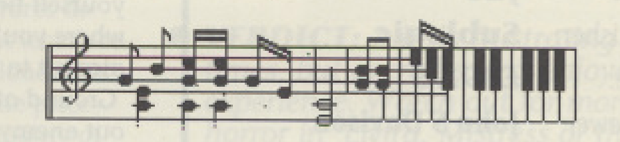
The final item you might include is that multi-track cassette recorder, particularly if you intend adding the sound of other instrumentalists or singers to your own efforts. But that's a whole new ballgame and beyond the scope of our beginner's guide to MIDI.



Superscore a combined score program and sequencer that can record and play back as well as printing top quality scores - but at a price!

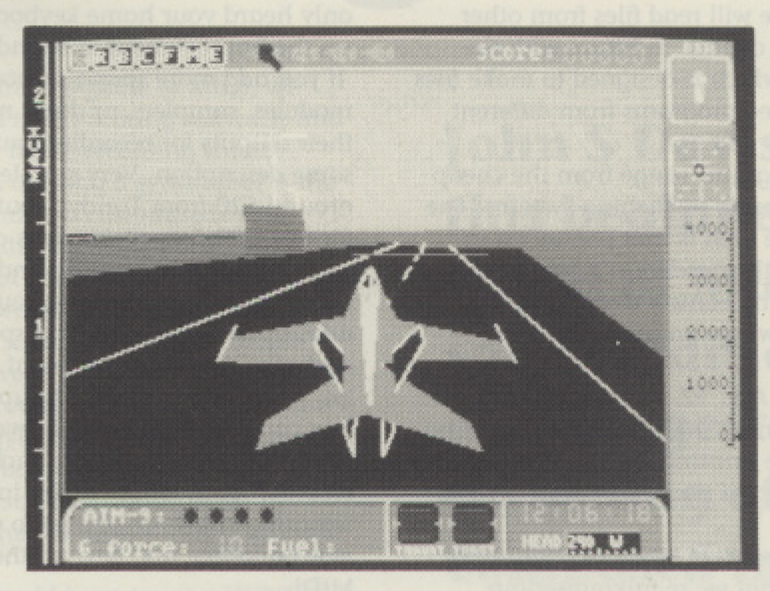
From here on the sky's the limit. You start climbing out of the amateur arena and into the world of the professional musician. Many of the famous bands you hear today produce their music using the same basic tools and techniques we've looked at in this series of articles. A surprising number of them originally started with a simple home MIDI recording studio, and many still do much of the work on their music at home. This saves thousands of pounds in professional studio hire fees and gives the musician a level of freedom undreamed of just a few years ago.

This revolution was largely brought about by MIDI, aided and abetted by the arrival of the ST with its built-in MIDI ports. You, the ST user, can easily join this revolution and follow in the footsteps of today's music stars. Who knows where they might lead you? ●



SUBLOGIC's

JET



As an avid user of Sublogic's legendary Flight Simulator II (FS2) I was really excited by the prospect of flying Jet, their latest simulator for the ST but let me say straight away that Jet is nothing like FS2. There are certain visual similarities, it can use FS2's scenery disks, and it has a similar two player mode using two interlinked ST's, but otherwise the products are as different as they could be.

Jet places you in the cockpit of either a land based F16 Fighting Falcon or a carrier based F/A18 Hornet. You're given a choice of missions in each, ranging through practice; dogfighting; ground target strike; a combined mission involving dogfighting and ground attack; and free flight, which allows you to explore the scenery of Jet's world unmolested by enemy action.

After selecting your aircraft, mission type, and difficulty level you're taken to an armaments screen to choose a weapon load appropriate to the mission. Ordnance includes short and long range air-to-air missiles, air-to-ground missiles, bombs, and cannon shells. Then, depending on the mission chosen, you'll find yourself sitting in the cockpit of an F16 or F/A18 located either on an airfield or on the catapult deck of a Nimitz class aircraft carrier.

Most of the screen is occupied by your outside view, and unlike FS2, Jet's instrumentation isn't authentic and has been cut to a minimum. Primary flight information is displayed in thin strips on the four edges of the screen. There are also various warning lights, a few secondary instruments, and rudimentary radio navigation aids to guide you back to your base.

Additional information may be toggled on and off the screen, including map and radar windows, and an attitude indicator. This is projected as a 'head-up display' on the windscreen, providing vital pitch and bank information useful during a dogfight.

Control may be any mix of mouse, joystick, or keyboard. Primary flight controls are rather oversensitive, making accurate control difficult. Flight behaviour isn't too convincing either, particularly during landings. This is probably a blessing in disguise though, as it makes landings easier - and you need all the help you can get when landing the F/A18 back on the aircraft carrier's deck!

LETHAL MIGS

If you choose dogfighting you'll meet some rather aggressive MiG-21 and MiG-23 aircraft soon after takeoff. They're graphically well portrayed and each type is clearly identifiable at close range. They manoeuvre realistically, and it takes skill to beat them. You're helped in this by the tracking boxes and ranging circle projected onto your head-up display by the aircraft's attack systems.

There's a problem though. Sublogic seem to have made things too difficult, as even at the easiest levels the MiGs fire far too many missiles at you. The only defence is violent manoeuvring - there's no chaff, flares, or other countermeasures you can use. All too often you get blasted out of the sky, although if you're quick you might get the chance to eject. In this case you see yourself floating to earth on a parachute, where you're rescued and given another aircraft to fly.

Ground attack in the F16 has you taking out enemy ground targets, including a power station, bridges, docks, and such like. In F/A18 mode your targets are Kynda-class missile cruisers of the Soviet navy. Again, you're helped by targeting cues projected onto your head-up display. Enemy targets are guarded by surface-to-air missiles, and once more these seem to be overdone somewhat, as you spend almost all your time avoiding missiles rather than attacking the enemy. For me this rather spoiled the action.

Ground scenery consists of flat areas plus occasional pyramid shaped mountains. There's also the odd road, river, and airfield, plus the targets mentioned above. All are shown in 3D colour filled graphics where appropriate. In the F/A18 missions the sea is featureless except for your carrier, the enemy vessels, and areas ruled with white parallel lines (representing waves?).

RIDE ON A MISSILE!

Jet has many of the view facilities of FS2 plus a few unique ones. You can get a 360 degree view from the cockpit in 45 degree sections, plus vertical views up and down. There are also spotter plane views from the side and behind your aircraft, control tower and tracking views, and a great option which instantly fixes the viewpoint at the location of your aircraft at that moment AND LEAVES IT THERE. It's as if a video camera has been set up to record your progress - you watch yourself streak away into the distance, and can even see yourself dogfighting with the enemy! In combat you can lock the view on a MiG so you can always see him, and you can even get the missile's eye view of an attack - as if you were riding on the missile!

SADLY DISAPPOINTING

Overall I found Jet disappointing, with my main criticisms aimed at its oversensitive controls, unrealistic flight behaviour, and overzealousness on the part of the enemy. It may have been good when first launched on the IBM PC in 1985, and it still has some nice features, but it can't really compete with the likes of Falcon and F16 Combat Pilot.

Title:	**JET**
Publisher:	**Sublogic**
Price:	**£39.95**
Reviewer:	**John S Davison**

PERSONAL NIGHTMARE

A HORROR STORY IN YOUR OWN FRONT ROOM

Lots of games these days claim to be Graphics Adventures, though most, like Level 9 and Magnetic Scrolls, are really text adventures with a few pictures to enhance the atmosphere. The main exceptions to this have been the Sierra games (King's Quest, Space Quest, etc.) and the Mindscape ones (Uninvited, Shadowgate, Deja Vu). Now a new company bursts onto the scene with a new style of genuine graphics adventure - Horrorsoft. Their first game, Personal Nightmare, certainly lives up to the company name! The plot is gruesome, you will die lots of horrible deaths (accompanied by suitably grotesque graphics) and you will have to do some pretty nasty things yourself if you want to win the game.

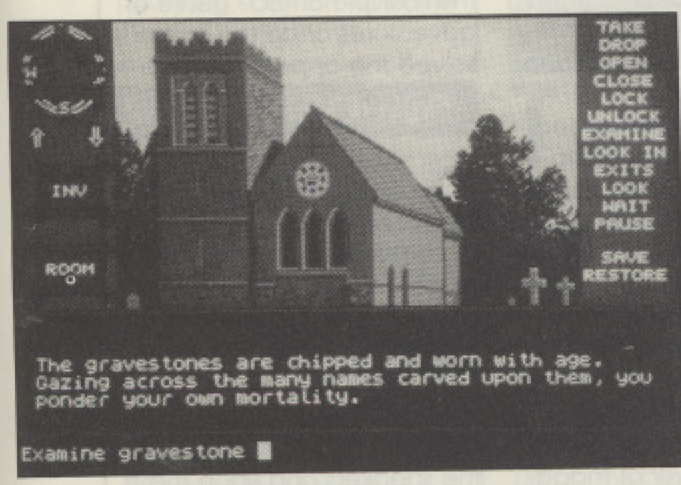
It is a large game with over 100 fully pictured locations and a cast of around a dozen characters who wander on and off screen living their own lives while you try to work out what is going on. The main action takes place in a large window which shows the current scene. Some useful commands (TAKE, OPEN, EXAMINE, LOOK IN, etc.) are listed down the side for you to invoke with the mouse. By pointing at these commands and then at items in the view you can build up sentences and then ENTER them with the mouse's right button. You can also use the mouse to open up windows showing your inventory and the room contents, and move items around - all very user-friendly. As well as this you can type in commands in the traditional manner for actions not covered by the icons.

TAKE
DROP
OPEN
CLOSE
LOCK
UNLOCK
EXAMINE
LOOK IN
EXITS
LOOK
WAIT
PAUSE
SAVE
RESTORE
INV
ROOM
decipher it.
The axe blade is blunt and badly rusted.
Apparently, whoever it was, was killed by an axe blow to the chest.

The game starts in the village pub. You have come home to investigate a rather worrying letter from your mother. There is a hit-and-run car 'accident' outside the pub and you become even more suspicious. Your questions and searching soon reveal that all is not well in the quaint little village of Tynham Cross - rumours abound of missing girls and witchcraft. You have four days to discover all the secrets of this strange place - if you can survive the nights! There is death on every side - vampires, hellhounds, ghosts, demons - you name it they've got it - and all beautifully animated. (Hint - you can still type commands after the animation has started - you don't always have to die!)

IF you can survive, and IF you can find enough evidence to convince the local policeman of what is going on, and IF you can persuade him not to throw YOU into jail, and IF you can find all the clues and artefacts necessary to rid the world of the evil presence behind all this, then you might just live long enough to see the final excellent graphic sequences! Save frequently!

On the negative side, there are a few minor bugs (though nothing that will stop you finishing the game - and they do have a new release planned for the near future), the parser isn't fantastic - the emphasis is definitely on the graphics, the implementation is not quite perfect (I like to be able to see the last thing I typed as well as the response to it, and two minutes to reload and get back to try again after one of the many deaths is a little too long for my liking), and the bottom half of the map appears to be printed back to front! The pictures do take a few seconds to load, but at least you get half a dozen rooms on each load (it is nothing like as bad as Sierra) - the price we have to pay if we want this quality of graphics with the current technology.



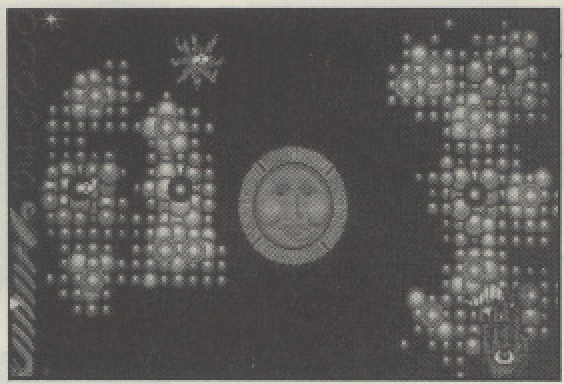
Title:	**PERSONAL NIGHTMARE**
Publisher:	**HORRORSOFT**
Price:	**£29.99**
Reviewer:	**John Sweeney**

There is a wide variety of problems for you to solve. On the simpler side there is the standard stuff, like making sure you have looked everywhere and found everything, and then putting what you find to their obvious uses. But there are lots of more difficult problems as well; some are nice logical puzzles; others are to do with being in the right place at the right time (unfortunately the WAIT command is rather inadequate) or in working out how to avoid imminent death. As long as you have the patience you will certainly get your money's worth out of this one!

Footnote: There is a particularly nasty bug if you get garrotted. When you restart the game you must ALWAYS replace the game diskette immediately after a SAVE - if you still have problems contact Horrorsoft.

- ***GAMEPLAY:*** *As long as you accept the limitations, then most of it is very good - I suspect the hints columns in the magazines will be busy with this one - it is a hard one to finish!*
- ***GRAPHICS:*** *Excellent - five diskettes full of pictures - but not recommended for the very young!*
- ***SOUND:*** *Lots of nice little effects which add to the atmosphere.*
- ***VERDICT:*** *A little frustrating at times, but overall a very enjoyable experience. Watch out for more horror in 'Elvira, Mistress of the Dark' later this year!*

WICKED



Every so often a game comes along which is different enough from the rest that it immediately grabs your attention. Wicked, from Electric Dreams, is a game which has this quality. The game is based on the ancient myth of good against evil. You are a mere mortal who is transformed into a star of fire as you now serve the great Sun God.

The game itself is basically a single screen shoot 'em up which involves considerably more thought than many other games of this type. When you begin the game the 'Eye of Infinity' looks on as you select your battleground against the evil forces in any one of the twelve great constellations of the Universe (the Zodiac star signs). Once you have been transported to the constellation of your choice a map of the stars unrolls before you, on which key stars of the system are highlighted. It is at these points that your fight against the dark forces truly begins....

Upon entering a screen a number of good and evil portals can be seen, each of which is creating good and evil 'growth' respectively. The main aim of the game is to smother all of the evil portals with good growth, thus winning the screen because no more evil growth can be created. To hinder you in your task of purging evil are the guardians, who are sent by the Beast from the land of Pandaemonium. During daytime, where the Sun God is visible in the centre of the screen, you have the power to destroy the evil guardians. At night, when the Beast is visible, your shots are rendered harmless against him. Each day and night throughout the game the central face (Sun or Beast) opens to reveal a Tarot card, which in turn creates a crystal sent from either the land of good or evil. These crystals have the ability to give you special powers but which can work against you.

In terms of presentation 'Wicked' is superb. Graphics are beautifully drawn and all animation is slick and in some cases quite amusing! Sound is also of high quality, the sampled spot effects are excellent and add greatly to the 'spooky' feel of the game. My only minor quibble is that the background music could have been a little better.

FACTS

Title:	**WICKED**
Publisher:	**Electric Dreams**
Price:	**£19.99**
Reviewer:	**John Davison jnr**

SIGHT & SOUND

Graphics are bright, colourful, and shaded to great effect. Sampled spot effects are wonderful, but the background tune lets the side down slightly

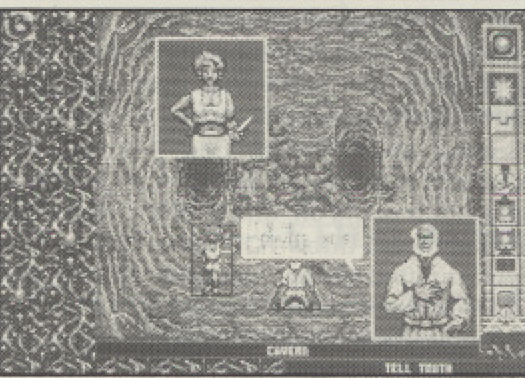
GAMEPLAY

Totally, totally addictive. It's the sort of game you sit down to play and end up realizing you've been playing for hours!

VERDICT

Wicked is one of best games I have reviewed in quite a while. It's definitely worth buying

KULT THE TEMPLE OF FLYING SAUCERS



FACTS

Title:	**KULT - The Temple of Flying Saucers**
Publisher:	**ERE Informatique**
Price:	**£24.95**
Reviewer:	**Damon Howarth**

SIGHT & SOUND

Good sampled and digitised music and spot effects, the graphics are mind blowing and well detailed, a gloomy riot of colour

GAMEPLAY

Initially difficult to pick up but once the controls are mastered exceptionally playable and addictive

VERDICT

If you like adventures, Michael Moorcock or Science Fiction get it!

This graphic adventure is produced by the same people who produced Captain Blood and Purple Saturn Day and it shows the same excellent artwork and strange ideologies of play.

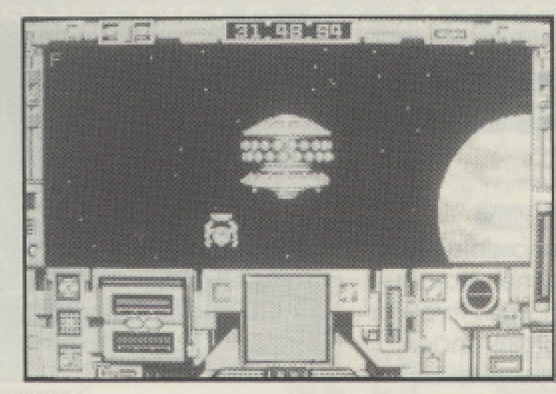
Your role as one of the outlawed Tuners, (Psi powered warriors) is to go and rescue your girl friend aptly named Psi-Fi from the clutches of the evil tyrants in the temple. In order to infiltrate their organisation you have to prove yourself worthy by finding five skulls each protected by some fairly mind bending puzzles. Surprisingly you are not alone on this trip and apart from the rivals also trying to gain their status you have a mental link to your mentor who appears as a foetus and offers clues and advice in strange phonetic speech bubbles.

Many of the problems need some form of special equipment to succeed in for instance a goblet is handy in the 'Twins' encounter. The first one of these is given to you by the Master of ceremonies but from then you are on your own.

The atmosphere surrounding this game is dark and grave and the artwork is like that found on the cover of magazines such as Amazing Stories. Control is by icons along the side of the action scren and decisions are activated by touching various nerve cells on the brain icon. The package comes with literature which conveys more of this slightly black humour. The game can be solved by trial and error and sadly as with all the multiple choice genre of adventures once the game is solved the appeal will drop off. Until that occurs though there is an addiction that is most surprising and even when every visible option has left you in a state of hair tearing bewilderment it becomes apparent that a small part of the excellent pictures has not been explored and more options spring to light.

When speech is uttered a sort a squeaky jabber emits from the speakers and since these aliens obviously speak a dialect of Clanger it is helpful that written versions of the words also appear. Most of the problems are solveable but I still cannot manage the final room and thus can not tell you if there is or is not a big finish.

ENTERPRISE



This latest release on the Atari 'Action Games' label is a mix of strategy and action. It has you flying around the galaxy to different planets in search of the super heavy atomic nuclei which help keep the planet of Sola III's ozone layer in operation.

You search the galaxy, which is experiencing war conditions, to locate mining colonies capable of finding the vital substances you need. Once located you must help these colonies by re-arming and re-supplying them as necessary. Throughout your mission you will encounter many enemy craft, who, as you would expect, try to do everything in their power to destroy you.

Your view of the proceedings throughout the game is from inside your hyperspace equipped spacecraft, which is capable of travelling great distances in a very short time. These 'warps', however, are one of my major complaints about the game. When you activate the hyper drive, although the special effects which follow are extremely impressive, it just takes *too* long.

Overall the game is very complex and a tough challenge. If tackled seriously it would take a long time to complete, but there is a save game feature. This complexity would make the game absolutely superb if it were not spoilt by a number of factors. One is the 'over-doing' of some graphics, such as the warp mentioned above. Another is the stupid number of aliens which attack you. There are loads of them, and they all move so fast it is practically impossible to destroy them without suffering considerable damage to yourself. I also feel that the scenes planets could be much better. The way they are presented makes you feel almost dizzy as you try to locate a mining complex or a hostile spacecraft which is meticulously tearing chunks out of you.

Graphically the game is of a fairly reasonable standard, with presentation very pleasing to the eye and colour used to good effect. Sound, on the other hand, is not at all good. The monotonous tune repeats over and over on the title screen and adds no 'atmosphere' to the game.

Enterprise is supplied with a very comprehensive instruction manual and an amusing and well written novella by Graham Wayne.

FACTS

Title: **ENTERPRISE**
Publisher: **Atari**
Price: **£19.99**
Reviewer: **John Davison jnr**

SIGHT & SOUND

Graphically the game is presented to a fairly high standard with some very impressive moments. Sound, however, is not very good

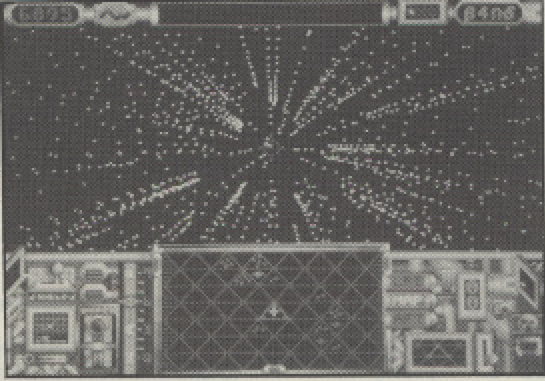
GAMEPLAY

Very complex but a great game has been spoilt by the presence of too many adversaries

VERDICT

Overall this game falls into that indeterminate category which is neither good nor bad

STAR RAIDERS



FACTS

Title: **STAR RAIDERS**
Publisher: **ATARI**
Price: **£14.99**
Reviewer: **Damon Howarth**

SIGHT & SOUND

The graphics are adequate and at times large and effective while the sound effects are strong but do not really compare to Star Trek for instance

GAMEPLAY

The whole game runs smoothly and well, things happen at reasonable speeds and it is enjoyable to play but not very addictive

VERDICT

A sentimental journey that does not really meet the rivals of today - still very playable but probably for the fanatic or the nostalgic

The savage Zycroids, malevolent robots from deep space have come to plunder the solar system and destroy organic life forms. Only the Star Raiders have the technology and skill to destroy these intruders.

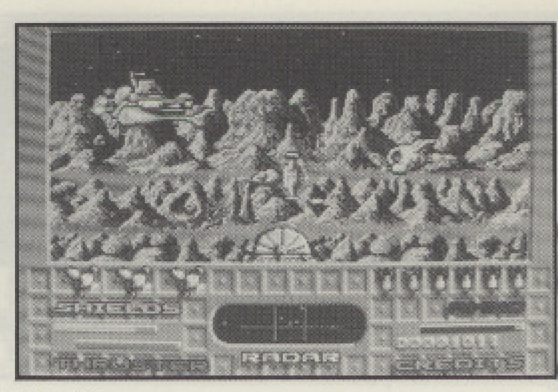
This game has been about on the 8-bit Ataris for many a long year and was a favourite then, just how it will measure up on the bigger machines is an interesting thought. The gameplay will remind readers of another classic game, Star Trek, in so far as the object is to clear sectors of aliens within a time limit while protecting space stations.

Quite often the game shows it's age and although the 16-bit technology has been written for it has not been used to it's full advantage. The difference between this classic and the old Star Trek games is that once the sectors have been found on the scanners the actual battles take place on screen as an arcade shoot em up as opposed to the two dimensional map.The system feels complicated owing to the fact that the manual is a little vague and makes play sound far more complex than it actually is. In fact once the game has been played for a little time then it becomes almost second nature as to which buttons to press and what viewers to use.

The advanced ST features do not seem to have been used a great deal and apart from reasonable sound effects the game feels to be a port from the eight bit. There is a level based entry to the game which gives different types and amounts of enemies and also a lowering time limit, and various grades of success that give the successful candidate differing ranks according to number of enemy killed at which level of play.

The game is most entertaining and can amuse for an hour or so and it is evident why it was such a hit on the original Atari machines but unfortunately the theme has been done better since. Either the new version of Star Trek which has better looking fight simulations or even Star Fleet Battles with better tactical appeal although lesser graphics could be better alternatives. Having said that I enjoyed playing the game and it sparked off memories of earlier ages.

STARBREAKER



Y ou are to become one of the elite band of planet clearers and guardian of the homeworlds in this Atari shoot 'em up. The action takes place on two levels, the first of which is a defender like set up wherein the small fighter craft has to blast its way across a horizontal planetscape looking for the entrances to various bases so that it may land to start the second part of the game.

The travel stage is a smooth scrolling fast piece of arcade action that will be familiar to all, with smart bombs and fast firing lazers. The graphics and spot effects at this level are adequate and the sprites are well sized and nicely controlled, although sometimes a little finicky about 'hot spots'. The enemy space craft are swift and devious and it makes a strong link game.

The second part is more like Impossible Mission as the android charges through various underground levels searching computer files for more energy or repairs and paying for these with credits earned by his kill points. The eventual aim is to destroy a giant space clam and exit the base after detonating the self destruct.

The artwork in this second level is entertaining and very cartoony, even the evil clams have a slight cutesey rating. The sprites are big and the option to run or fly is almost always available. It is imperative to remember where various items may be purchased to keep up stocks of all necessary equipment, it is also necessary to become adept at quick take offs to avoid being blown away in the destruction of the base.

There is an eight bit conversion feel to the game but for all that it exudes a feeling of entertainment and sports some originality within an old genre. I found the game becoming quite addictive and it made my firing finger become quite stiff and sore after a while. The loading screens and the initial sight of the Starbreaker going to battle are most effective and show up the Science Fiction background of the game well. It is not often that two fairly classic games are merged into a game that needs some logic and skill with all the speed of a good arcade shoot 'em up. It's good to know that Atari can produce such games.

FACTS

Title:	**STARBREAKER**
Publisher:	**ATARI/FRAMES**
Price:	**£14.99**
Reviewer:	**Damon Howarth**

SIGHT & SOUND

Good spot sound effects although the loading music is average. Graphics are colourful and exciting adding greatly to the enjoyment of the game

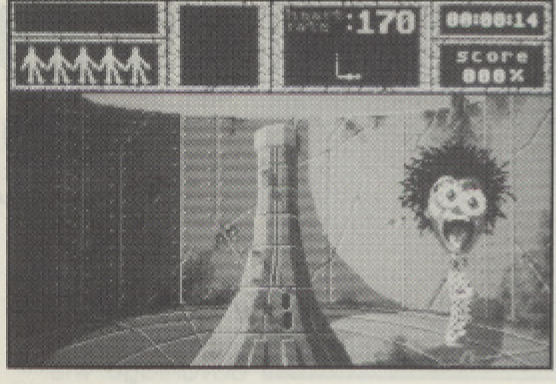
GAMEPLAY

Fast and furious, all the pleasant sensations of smooth scrolling and a most enjoyable experience, not too difficult either!

VERDICT

A good revamp of old ideas, worth a tryout at least and probably appealing to nostalgic arcade fans

WEIRD DREAMS



FACTS

Title:	**WEIRD DREAMS**
Publisher:	**Rainbird**
Price:	**£24.99**
Reviewer:	**Damon Howarth**

SIGHT & SOUND

Visually very effective, with some horrific graphics, the spot effects are to the point and the soundtrack atmospheric

GAMEPLAY

Difficult to play and will take time to master, some more clues on what to do early on would be helpful otherwise slick and entertaining

VERDICT

I felt this to be a game that would need a Pythonesque, black humour to fully appreciate - possibly a once completed, happy to forget game.

I first became acquainted with this game through Saturday morning TV where it played a vital part in the children's competition on Get Fresh or something similar. At that time it looked graphically pretty, although somewhat horrendous, but nonetheless fairly straightforward to play.

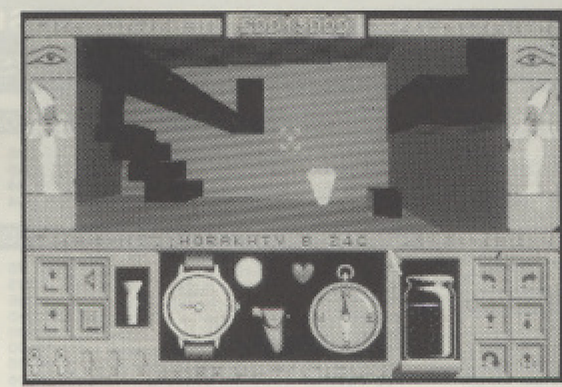
On playing the ST version I find the same strange graphics which seem akin to impressionism or a Salvador Dali painting with a long plot that does not help the understanding of the game. It seems that the player is trapped in a nightmare and the only way to live is to play out all the screens in the dream and then defeat the final monster. All this is done technically well and with a zest for the surreal that suits the theme. Unfortunately nothing actually explains the tasks that need to be undergone to make anything happen, it took me numerous loadings to realise that the first screen is merely a device to enter the world of nightmare and does not need any action other than a well timed jump on to a Candy floss machine.

Subsequent screens are linked through a Hall of Mirrors and going through one mirror leads to a new encounter, thus it seems that a maximum of five different scenarios are possible plus the closing fight. While this does not sound a lot believe me they are difficult. I still do not know how to combat the wasp in the first game although I can run away from it very well! On some screens the means to defeat the nasties are possibly obvious, for example catch the fish that fly through the air to hit the Easter Island monsters, or pick up a garden stick to fence with the man eating plants.

The sprites are big and well formed, even the action is fairly smooth although there is a gap in crossing screens owing to the complexity of a screen and the need to load each from disk. The protection comes from quoting a word from the accompanying Novella and in the main this works well although the pages do have a large number of paragraphs so a great deal of counting is necessary.

This is a pacey surreal game that contains some humour but despite all it's class still lacks a little something.

TOTAL ECLIPSE



For reasons too complex to explain here the last of the Pharaohs built a shrine to Ra, the Sun God, into the apex of a giant pyramid. He then placed a curse on it - anything stopping the sun's rays shining on it during daylight hours would be totally destroyed. So far nothing has happened, but at 10 o'clock today, 26th October 1930, a total eclipse of the sun will be visible from Egypt. Horrors! This means destruction of the Moon, which in turn will cause unspeakably nasty things to happen to the Earth. Someone must break the curse by destroying the shrine.

You've just landed your clapped out biplane next to the pyramid. Equipped only with a gun, torch, compass, bottle of water, and a wristwatch which tells you it's already 8 o'clock, you have just two hours to save the world!

The Pharaoh was a cunning old devil - he made the route through the pyramid to the shrine a really tough one. You have to negotiate a complex multi-level maze of chambers, corridors, and stairs, with the way frequently blocked by massive stone barriers, decidedly unfriendly mummies, and vicious booby traps. He must have employed some pretty slick engineers too, judging by the way some of those stone doors, barriers, and traps operate, and by the presence of what seems to be ancient Egyptian teleportation technology!

The program uses Incentive's Freescape 3D graphics system. This gives a first-person subjective viewpoint of your surroundings, allows you free movement in three dimensions through those surroundings, and provides a greater feeling of personal involvement. The 3D graphics aren't particularly detailed, but the frame through which you view them is - it's inscribed with lots of tiny animated hieroglyphics.

You have two hours of real time to find the shrine, but a save/restore game facility means you don't have to complete the quest at one sitting. Succeed and you're honoured by a rather tame firework display. Fail and you'll witness the Moon's rapid but spectacular demise, presumably caused by the Pharaoh's ancient Egyptian supermega particle beam blaster! I never knew ancient history could provide such fun!

FACTS

Title:	**TOTAL ECLIPSE**
Publisher:	**Micro Status**
Price:	**£24.95**
Reviewer:	**John S Davison**

SIGHT & SOUND

Unusual solid 3D graphics using first-person subjective viewpoint. Good atmospheric music and sampled sound effects

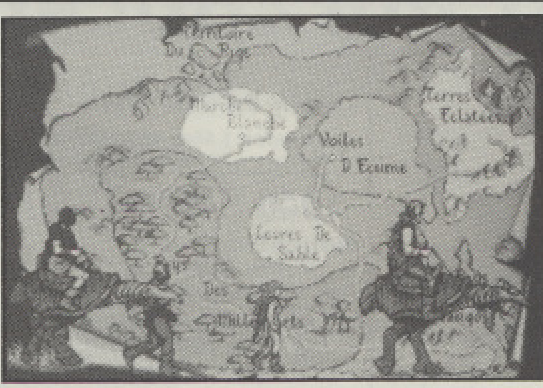
GAMEPLAY

There's something here for everyone - arcade adventure, puzzle solving, and even some shooting for the trigger happy!

VERDICT

An absorbing game built on a crazy scenario, but with enough variety and challenge to hold your interest for some time

QUEST FOR THE TIME-BIRD



FACTS

Title:	**QUEST FOR THE TIME-BIRD**
Publisher:	**Infogrames**
Price:	**£24.95p**
Reviewer:	**Damon Howarth**

SIGHT & SOUND

Graphically stimulating, action and excitement everywhere, aurally patchy varying from highly effective and evocative to fairly ordinary

GAMEPLAY

Very smooth but it takes time for various screens to load. Options are all pre-planned and the feeling is one of fatalism rather than determinism

VERDICT

Wonderful Gallic romp, a touch fussy and sometimes difficult I liked Kult better but this is good

It is time to don your Gallic sword and wield some graphic sorcery. This game is based on a popular French comic book which does not seem to have made it's way over here, more's the pity, and is an icon driven adventure similar in style to the ill-fated Passengers on the Wind.

The task is fairly simple as stated, recover a magic book and discover the Time-Bird in order to stop the resurrection of the ultimately evil wizard, all of which is repeatedly described at the start of the game in wonderful pictures. The player ultimately controls four characters although only two, Bargon the retired knight and the robustly proportioned Roxanna daughter of the witch Mara set off on the quest.

Control is by clicking on the various characters which opens up the numerous option boxes either of possessions or speech. The system will be recognisable to those who played the Passenger On the Wind games although the whole management is better. The travel to different lands is handled by a map screen which is controlled by an old man with a fussy pointer but on the whole it works well. Surprisingly this is not so much a hack and slay adventure but one more suited to diplomacy and correct choice of multiple selection dialogue boxes. Death can come easily but it is in fact possible to finish the game with only one survivor. not think it will threaten even Kylie but it was quite acceptable for the job in hand.

One distressing note is that the game is supplied on double sided disks, this is not immediately noticeable and it is not until half meg machines stop in mid event that there is a hint of any problem, which can prove frustrating to those with single sided drives. Furthermore it likes to boot from drive A and therefore even those with external 1 meg drives may have problems.

The great saviour of the game is the superb comic book art work. The whole experience feels like playing in a good quality comic with detail being the prime feature and, I suspect, offering a taste of live inter-action for those who actually know and love what I believe to be a popular French comic strip.

BATTLETECH

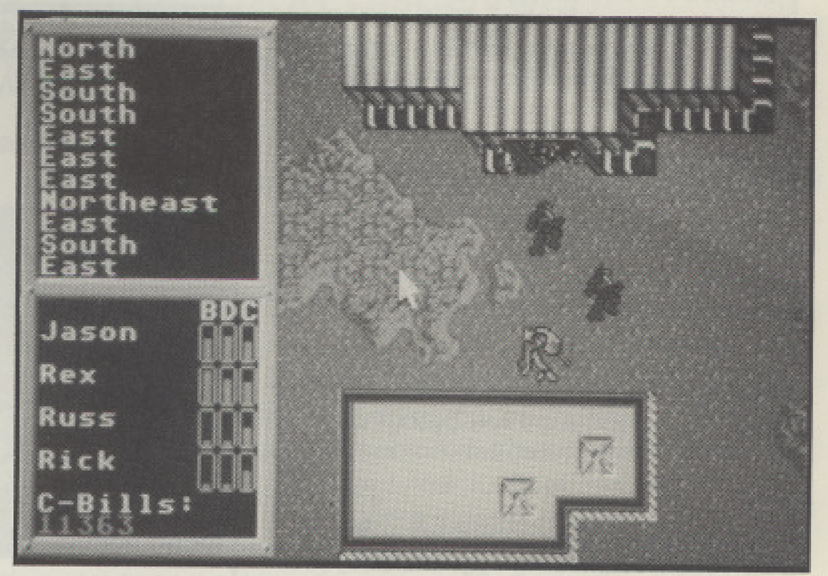
THE CRESCENT HAWK'S INCEPTION

In the beginning was BattleDroids - a fairly primitive little wargame which involved two players simulating a fight between two giant robots. Four or five years later you will now find shelves full of FASA Corporation's extremely successful and popular BattleTech board game material in your local games shop - boxed sets of war games covering BattleTech, CityTech, Aerotech, etc. plus RPG manuals such as MechWarrior, with many associated scenarios, detailed manuals of the five Houses which are warring over the galaxy over 1000 years in the future, a regular magazine (BattleTechnology) devoted entirely to BattleTech and its spinoffs, and even a manual detailing all the regimental paint schemes for your miniatures!

Now at last, thanks to Infocom and Westwood Associates, you can play BattleTech on your ST. Enough information is provided in the manual to set the scene, and you can enjoy the game without having played any other BattleTech games.

You are Jason Youngblood, 18 years old and just about to start your training as a BattleMech operator. A BattleMech is a giant robot - 10 to 12 metres tall and weighing 20 to 25 tons, bristling with lasers, missile launchers and guns. You sit inside and control it!

There are three main phases to the game. In the first phase you undertake a number of training missions and learn how to manoeuvre and fight in your BattleMech. A large window shows a bird's eye view of the local terrain and the enemy. You use the mouse to select menu options from another window. These allow you to direct your movements and target each of your weapons on an enemy 'Mech or person. You can dynamically tailor the game options to allow you to see all the 'Mechs moving and firing, together with short cartoons in a small window showing some of the battle action in close-up, or you can suppress all or any of that and just see the results.



In between the training missions you can explore the city and invest your money - be wise with it - you will need some armour and weapons if you hope to survive phase two!

Your training is abruptly cut short by an enemy attack on the planet. In the second part of the game you will need to use your newly acquired skills for real to survive in this now-hostile world. You have to explore the whole planet (fortunately the game keeps a very nice map of it all for you!) to find friends, weapons, and BattleMechs. With enough money you can get your 'Mechs modified to include more armour and weapons and make you and your friends a really lethal battle force. Your prime objective is to find a hidden Star League cache of BattleMechs and spare parts.

When you finally enter the cache the third phase begins - solving the puzzles of the cache to finally unearth the BattleMechs. This is a nice addition to the game, requiring you to explore a large underground complex and find all the right codes to open the doors, plus solve a few other little puzzles as well. (Again, the computer is very friendly and makes a map for you!)

The whole game is mouse driven and very easy to play. As well as all the fighting, you will need to explore thoroughly in order to acquire a few artefacts that you need and to enlist some friends, without whom you will never succeed - but don't trust everyone. There is lots of text to enhance the storyline, plus the occasional decision to make - usually in the form of a question to which you reply by pointing at either YES or NO with the mouse.

You will also need lots of money and there are plenty of ways to acquire this: you can fight in the arena, or wander round the countryside stomping on enemy 'Mechs - salvaging what you can if you have the right skills, or you can invest it in the local equivalent of the Stock Exchange!

'a complete departure for Infocom'

- ***GAMEPLAY*** *- Excellent - once you get used to the controls you can have some superb fights - it leads you nicely through the various quests to the endgame, with plenty of variety along the way*
- ***GRAPHICS*** *- scrolling landscapes, animated fight scenes, graphical status reports on your 'Mech - lots of good stuff.*
- ***SOUND*** *- minimal, but adequate*
- ***VERDICT*** *- a complete departure for Infocom - good fun - well worth having a look at*

Title:	**BATTLETECH**
Publisher:	**Infocom**
Price:	**£24.99**
Reviewer:	**John Sweeney**

THE ROUNDUP

With so many ST games being relesed it is impossible to review them all so here John Davison jnr and Damon Howarth present a roundup of all the others received for review since the last issue for.

CRACKED

ATARI ***Price £19.95***

Cracked is a different sort of game in so far as it is a shooting gallery type of enterprise. The players job is to defend batches of eggs from various marauders on five different screens. A bonus section involving egg throwing at a rooster appears at fairly random intervals and is also great fun.

This game is basically light weight and created for fun, and as such it succeeds admirably. There is no plot as such and it feels like a day at the fair. The graphics are fun and there are several visual puns along the way, a limited but enjoyable effort.

SIGHT & SOUND: Not a lot of sound except for gunshots, the sprites are very good and the transformations between live and dead target are amusing.

VERDICT: Very easy to understand, shoot marauders, catch falling eggs and enjoy yourself, everything is simple, well implemented and great fun. Not a game for prolonged play but one to come back to regularly, a refreshing change from scrolling games, worth having to unwind after a bad day at work.

DH

GO-MOKU/RENJU

Atari ***Price £14.99***

Variations on an ancient classic oriental board game, sometimes known in the West as five-in-a-row. It's played on a big square ruled board with counters, and is great fun to play if you enjoy this style of game.

SIGHT AND SOUND: As with Backgammon there is no sound and the graphics are very simple in appearance, being just black on white. However it is presented tidily and is by no means offensive to the eye.

VERDICT: A very good implementation of an old favourite. However the presentation could be a little more 'interesting'. Overall it's good, but could be better.

JD

SAVAGE

Firebird/Microprose Price £19.95

An arcade style scrolling game in three stages, where you play the part of the muscle bound warrior 'Savage' on a mission to rescue his maiden from the clutches of evil. It's one of those very addictive games with plenty of shooting!

SIGHT AND SOUND: Graphics are of very high quality. They are large, colourful and very well animated. Sound is also good, consisting of a catchy background tune along with some obscure spot effects from time to time.

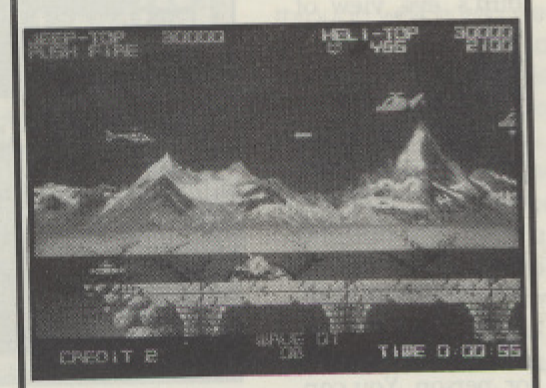
VERDICT: Very good! A nicely presented and playable game with some very nice touches. One of those which requires 'just one more go'

JD

SILKWORM

VIRGIN GAMES

Price £19.99



A shoot 'em up for two wherein the player(s) control a helicopter and a jeep in a horizontal scrolling game trying to blow up myriads of enemies and gaining bonuses on the way. The end of each level has a specialised difficult war machine to destroy and there are mighty snake-like Helicopters to kill on each level for weapon enhancements. The sprites are well controlled and the leaping jeep is a wonderful sight to see. Fast and furious and it is even possible for one player to control both machines with one joystick.

SIGHT & SOUND: Loud effects and strong tunes run through the game - the graphics are big, brash and smooth everything adds to good effect.

VERDICT: Fast and wild, never a moment to take a breath and the joystick needs to take a pounding, a good arcade conversion. A great shoot 'em up especially if you have a mate to help you. Sometimes a little cluttered otherwise worth getting.

DH

BACKGAMMON

Atari ***Price £14.99***

A brilliant conversion of the classic board game which allows you to play at several different levels of difficulty. Highly addictive and very, very playable either against the computer or against another player

SIGHT AND SOUND: Your average board game doesn't make a lot of noise, and neither does this computer version. Adds to the realism I suppose!! The graphics are bold and more than adequate for what is needed.

VERDICT: I love the board game, and this computer version is ideal for when there is nobody else about to play. An excellent reproduction of one of the oldest games of skill and chance.

JD

DOMINATOR

System 3 ***Price £24.99***

A vertical, and in places horizontal, shoot 'em up game which is difficult to get into. Gameplay is fairly intense although it has this annoying habit of sending you back to the beginning of the level when you die.

SIGHT AND SOUND: The music on the title screen is superb! Sampled keyboards, drums and powerful guitars thump out a catchy tune. The graphics are also impressive although they could be better in places, as could the scrolling.

VERDICT: Too *SLOW*! Looks good, sounds good, plays *BORING*! Needs to be more exciting for me to rate it as a superb game. However if you like this style of game there aren't many around that are better. Personally I prefer the shoot 'em up style of Gridrunner.

JD

GIANTS

US GOLD ***Price £29.95p***

A compilation containing four games on six single sided disks. Outrun, Gauntlet II, 1943 and Street Fighter. These are all competent arcade conversions with all the US Gold hallmarks. Beware of Gauntlet if you have a printer connected to the printer port since the software assumes the printer is a third or fourth player interface and messes up the game a bit. Most of these games will be available in the next 520 bonus pack. The set represents good value if your collection is short of some of these 'classics'.

SIGHT & SOUND: Generally good. Gauntlet and Street Fighter score well on both while 1943 disappoints a little.

VERDICT: Nice to see a compilation of decent games, if you are short of a couple or three then it is well worth it for the archives. Good value for money.

DH

FINAL LEGACY

ATARI ***Price £19.95***

Yet another Atari release, a sort of multi stage wargame. There is a lot going on in this game, it is your task to blow up opposing navies and their missile bases. It is also your job to stop enemy missiles falling on to your cities with the spy in the sky laser. All this is accomplished from the main screen menus which launch the player into a variety of sub games. The pace is fast

but somehow the whole thing only partially caught the imagination.

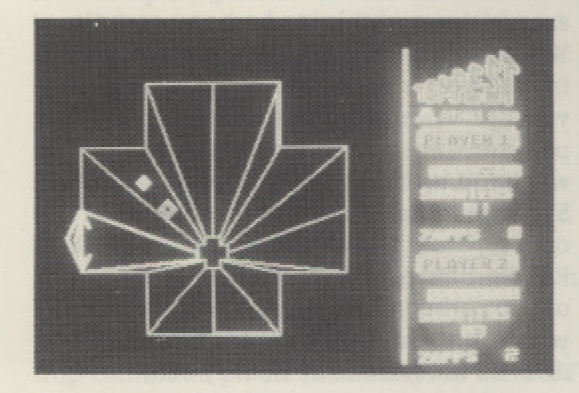
SIGHT & SOUND: Graphically well coloured but blocky, nothing special and the sound is limited to spot effects, again possibly an eight bit conversion.

VERDICT: The game felt ponderous although plenty went on, the missile protection section felt like Missile Command proficiently coded but lacking 'feel'. There is nothing that is poor about it but nothing to raise it above mediocre, try before buying.

DH

TEMPEST

Atari Price £14.99



A straight conversion of the ancient arcade game which used a colour vector graphics screen.

SIGHT AND SOUND: The action is incredibly fast and the graphics do not flicker or judder in any way. The sound is, to be quite honest, DREADFUL and does nothing to enhance the game at all.

VERDICT: Very often it is a bad move to convert a game of this type to a home computer, and this particular version of Tempest is proof of this. I loved the original, but this version bored me a little as the magic ingredient which made the arcade machine so special seems to be missing.

JD

SKYFOX II

Electronic Arts Price £9.99

Space age 'through the cockpit' shoot 'em up. You perform different missions to destroy the evil forces. Not the most original idea, nor the most playable game.

SIGHT AND SOUND: Graphically the game has a very 'chunky' appearance and does not show any of the ST's capabilities. The sound is also decidedly unimpressive.

VERDICT: The original wasn't much good and this sequel makes no major improvements whatsoever. Presentation is poor and gameplay is dull. Even though it is a low cost release, I cannot really say that it is value for money.

JD

BATTLE CHESS

Electronic Arts £24.95

John S Davison discovers a new way to play an old game

Do you think chess games are boring and couldn't possibly interest you? If so, take a look at Battle Chess and there's a good chance you'll change your mind after seeing it in action.

You probably wouldn't alter your opinion if you saw the game in its two dimensional graphics mode. This displays a very ordinary looking 2D chess board and pieces, with which you can play straight, gimmickless games of chess. Choosing the 3D option, however, should do the trick as it transports you into a completely different world of chess. The board takes on the appearance of a veined marble slab and the chess pieces become exquisitely detailed three dimensional medieval characters - and they've a few surprises in store for you.

Choice of graphics mode is made from the game's option menus, which are normally hidden from view. However, when the menus are activated two cherubs with wings aflutter descend from the top of the screen, unrolling fancy tasselled menus as they go. Most of the usual computer chess game options are here, for example board setup, skill level setting, game load/save, etc., making the program suitable for use both by beginners or more expert players.

After indicating your move using the mouse some rather interesting things start to happen. The selected piece comes to life and WALKS to the chosen destination square, using some of the best animation and sampled sound effects I've met in a long while. Each type of chess piece has its own style (and sound) of moving, for instance the Knight stomps and rattles along in his armour, barging past anyone in his path. And the way the Queen seductively sways her assets as she glides across the board is a minor masterpiece of animation!

The real fun starts when the destination square is already occupied by another piece and has to be captured. The two opponents position themselves in the disputed square and battle it out using whatever weapons, magic, or sheer brute force they have at their disposal. Each combination of two pieces results in a different type of fight so you get to see a wide variety of superbly animated action sequences. Most of them are amusing to watch, some hilariously so, but one or two are somewhat on the gory side. The sampled battle sounds are good too, although again some are rather too blood-curdling for my liking. The outcome of each battle is never in doubt - the attacking piece always wins, as you'd expect.

Overall, Battle Chess is an entertaining and enjoyable game, but unfortunately the animated movement and battle sequences slow down the real chess action and play havoc with your concentration. They could also become tiresome once the initial impact wears off, but you'll have great fun until it does, though!

GAMEPLAY: *The standard game of chess with the added options of two players with connected STs or via a modem and a rather expensive phone bill!*

SIGHT & SOUND: *Superb animation of the chess pieces bringing a whole new dimension to the game. Sound is mostly sampled and used to excellent effect*

VERDICT: *Because of it's 'non-standard' animation I think this one is more likely to appeal to the newcomer to chess rather than the serious or experienced player, who'd be better off buying something like CDS's superb Colossus X*

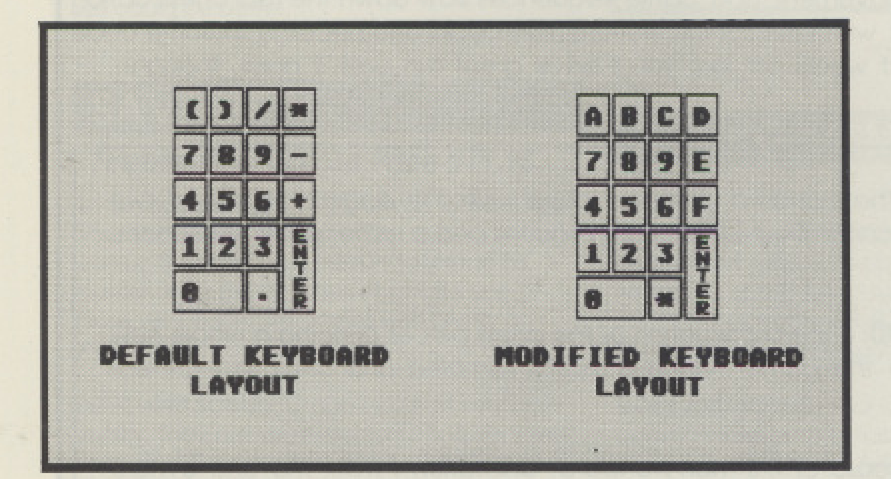
THE STOS COLUMN

Peter Hickman brings you the first of your contributions plus a Scrolly Message Editor and Slide Show all of which can be typed in with STOS Basic

In the last issue I did not have a chance to outline the general content of this STOS series, so at the moment this column does not have a fixed format, in some issues I will fill three or four pages with a tutorial, while other issues will contain programs with a small breakdown of each so everybody can study and learn from them.

A small problem will be the length of the programs published, I have written lots of programs that are far too long to include in the magazine so I intend to put them into the PAGE 6 PD library together with quite a few sprite banks and fonts. Now this is nice but let's face it, a whole set of disks filled with all these things would be even better, and this is where you come in. What I would like you to do is send me (my address is at the end of the article) all your sprites, music, fonts, games, serious programs, even animated cartoons and I will try to include some of them in this STOS column, the rest will be organised onto separate disks and then put into the PAGE 6 library for everybody to study, use, and experiment with. Any programs that you wish to donate for the STOS column/disks do not have to be heavily commented or be accompanied with an instruction manual the size of War and Peace. For all of the short programs I decide to include in the column I will do a line-by-line breakdown, so other STOS users can learn how to make more effective use of the commands available within the current version of STOS, of course what would be nice is an upgrade to STOS which allowed PASCAL like procedures and dynamic data structures (more on this subject next issue!).

```
30 dim BUFF(32)
32 BUFADR=varptr(BUFF(0))
33 rem ********** READ DATA INTO A STRING READY FOR XBIOS CALL **********
34 for X=0 to 127
36 read BUFDATA
38 poke BUFADR+X,BUFDATA
40 next X
41 rem **********     KEYBOARD TABLE DATA (LOWER CASE ONLY)     **********
42 data 0,27,49,50,51,52,53,54
44 data 55,56,57,48,45,61,8,9
46 data 113,119,101,114,116,121,117,105
48 data 111,112,91,93,13,0,97,115
50 data 100,102,103,104,106,107,108,59
52 data 39,96,0,35,122,120,99,118
54 data 98,110,109,44,46,47,0,0
56 data 0,32,0,0,0,0,0,0
58 data 0,0,0,0,0,0,0,0
60 data 0,0,69,0,0,0,70,0
62 data 0.0,0,127,0,0,0,0
64 data 0,0,0,0,0,0,0,0
66 data 92,0,0,65,66,67,68,55
68 data 56,57,52,53,54,49,50,51
70 data 48,42,13,0,0,0,0,0
72 data 0,0,0,0,0,0,0,0
73 rem **********      CALL XBIOS AND SET UP NEW KEYBOARD      **********
74 trap 14,16, .1 BUFADR, .1-1, .1-1
76 cls
1171 rem **********    RESTORES ORIGINAL KEYBOARD LAYOUT      **********
1172 trap 14,24
```



Laurence Myears redefined keypad program

A REDEFINED KEYPAD

Now to this issue's programs, the first of which is a contribution from Laurence Myears of Gloucester. His program is a small listing (see PROGRAM 1) which uses the XBIOS "KEYTBL" call to modify the layout of the numeric keypad (see FIG.1) to make typing in those memory banks really easy.

Enter the listing as follows :

1) Load the "INPDATA.ACB" accessory from your STOS backup disk.
2) Enter PROGRAM 1 ignoring the REM statements if you wish.
3) Line 1170 causes a error which is fortunately trapped by the program and is invisible to the user, but even so you should change it from

    for x=0 to 15:erase x:next x

   to

    for x=1 to 15:erase x:next x

4) Save the modified version of the program back onto your accessory disk.

KEYPAD - HOW IT WORKS

LINE 30 dimensions a numeric array. The array is 32 longwords big and if my old 'A' level computer science teacher was to be believed there are 2 words in a longword and 2 bytes in a word, giving space for 128 bytes of information.
LINE 32 finds the starting address of the array.
LINES 34-40 read in the data and POKE it one byte at a time into the memory occupied by the numeric array BUFF.
LINES 42-72 contain the keyboard definition data
LINE 74 calls XBIOS routine number 16, the trap command passes the address of the BUFF array (contained in the BUFADR variable) , it also passes two -1 parameters to the routine these tell it not to redefine the shifted or caps locked keyboard layouts.
LINE 1172 calls XBIOS 24, this restores the default keyboard layout.

The subject of redefining the keyboard layout is far to long, not to mention complicated for this column to cover in any depth but if you would like some more information on this subject I can recommend a book called ATARI ST INTERNALS by ABACUS ISBN 0-916439-46-1, it does contain a few errors but is still one of the better books available for the ST.

SCROLLY RELIEF

Wow, that's the serious stuff out of the way now for the light relief. The next program (see PROGRAM 2) is a simple no-frills scrolly demo that uses no sprites or anything fancy, it doesn't even alter the default colour palette. I have included this demo in the column this month because the one I had been working on grew out of all proportion and once the memory banks had been listed it took up the best part of 300k!!!

HOW IT WORKS

LINES 110-140 define the variables that the text is stored in.
LINES 170-210 create a striped screen by drawing eight lines (colours 8 - 15) at the top of the screen. They are then grabbed into TEMP$ using the SCREEN$ command and copied onto the rest of the screen.

continued overleaf

```
10 rem ************************************************************************
20 rem *                                                                      *
30 rem *           STOS SPECIAL FX #2 - SIMPLE SCROLLY & SHUDDER DEMO         *
40 rem *                                                                      *
50 rem *                            BY P.J.HICKMAN                            *
60 rem *                                                                      *
70 rem ************************************************************************
80 key off : hide : mode 0 : curs off
90  :
100 rem **********   PUT MESSAGE INTO TWO STRINGS - TEXT$ AND TEXT2$
**********
110 TEXT$="PETE'S SIMPLE SCROLLY TEXT DEMO"
120 TEXT2$="THIS IS A VERY SIMPLE DEMO THAT SHOWS HOW EASY IT IS TO PRODUCE SOME
INTERESTING AND HIGHLY EFFECTIVE DISPLAY'S IN STOS. THE SHUDDER EFFECT COULD B
E PUT TO GOOD USE ON THE TITLE SCREEN OF A GAME, NO SCROLL ZONES ARE USED MAKING
IT REALLY EASY TO PRODUCE.....                  "
130 TEXT2$=TEXT2$+"THIS SCROLLING MESSAGE MAY NOT BE UP TO THE SAME STANDARD AS
THE UNION DEMO BUT IT IS QUITE SMOOTH AND COULD LIVEN UP A GAME.....           L
OOK OUT ON ONE OF THE UPCOMING STOS PUBLIC DOMAIN DISKS FOR A JAZZY VERSION OF
THIS MESSAGE WITH LOADSA COLOURS, A BIG FONT ( I'M GONNA CHEAT AND USE
SPRITES!!
!! ) AND MAYBE A BIT OF DIGITISED SOUND.....               "
140 TEXT2$=TEXT2$+"I AM LOOKING FORWARD TO YOUR CONTRIBUTIONS FOR THE STOS
DISKS.....          UNTIL NEXT TIME.....            SO
LOOOOOOOOOOONNNNNNNNGGGGGGGGGGG
G.      "
150  :
160 rem **********   DRAW 8 COLOURED LINES AT THE TOP OF THE SCREEN
**********
170 for LOOP=0 to 7 : ink 8+LOOP : draw 0,LOOP to 319,LOOP : next LOOP
180 rem **********  COPY THEM INTO TEMP$ VARIABLE AND CREATE STRIPES
**********
190 TEMP$=screen$(physic,0,0 to 320,7)
200 for LOOP=0 to 199 step 8 : screen$(physic,0,LOOP)=TEMP$ : next LOOP
210 screen copy physic to back
220 rem **********        "DUMB" COLOUR CYCLE WITH SHIFT COMMAND
**********
230 shift 10,8
240  :
250 rem **********   DEFINE SCROLL ZONE AND Y COORD FOR TEXT TO SIT
**********
260 YSTART=10
270 def scroll 1,0,ygraphic(YSTART) to 320,ygraphic(YSTART+1),-4,0
280  :
290 rem **********       START MAIN LOOP FOR SHUDDER TEXT PRINT
**********
300 for LOOP=1 to len(TEXT$)
310 locate 4+LOOP,YSTART : print mid$(TEXT$,LOOP,1);
320  :
330 rem ********** CREATE A SHUDDER EFFECT WITH SCROLL UP+SCROLL DOWN
**********
340 boom : for LOOP2=1 to 2 : locate 0,24 : wait vbl : scroll up : locate 0,0 :
wait vbl : scroll down : next LOOP2
350 next LOOP
360 wait 20
370  :
380 rem **********      SCROLL FIRST LOT OF TEXT OFF SCREEN RAPIDLY
**********
390 for LOOP=1 to 80 : wait vbl : scroll 1 : next LOOP
400  :
410 rem **********              SCROLL TEXT2$ MAIN LOOP
**********
420 repeat
430 for LOOP=1 to len(TEXT2$)
440 locate 39,YSTART : print mid$(TEXT2$,LOOP,1);
450  :
460 rem **********    PRINTS AT FAR RIGHT OF SCREEN AND SCROLLS LEFT
**********
470 wait vbl : scroll 1 : wait vbl : scroll 1
480 next LOOP
490 until false
```

Listing 2 - Scrolly Text Messages

Try playing with the STEP command in line 200.
LINE 230 uses the SHIFT command to cycle colours 8-15. I have described this as 'dumb' because the command isn't flexible enough. A vast improvement would have been made if the command allowed you to cycle various colours out of sequence, for example cycling colours 8, 10, 11, 14 is impossible. The routine I wrote to cycle colours using FLASH is much more flexible (see last issue).
LINE 270 defines the scrolling area.
LINES 300-350 prints the text in the variable TEXT$ and makes it 'shudder', this is a simple effect which can be seen in quite a few 8-bit Atari basic games. The effect is achieved by positioning the cursor at the bottom of the screen and using the SCROLL UP command, this creates a new line at the bottom of the screen and pushes one off the top. The SCROLL DOWN command is then used to do the opposite.
LINE 390 moves the text off the screen quickly.
LINES 420-480 prints a single character at the far right of the screen and scrolls 8 pixels left, the next character is then printed and is once again scrolled left.
LINE 490 is the end of the repeat loop and makes sure the text is printed from the beginning over and over again. The logic behind the UNTIL FALSE command is quite simple and is easily explained without going into binary mathematics, the statement is a short version of saying UNTIL FALSE=TRUE and because FALSE is a reserved word and doesn't change its value FALSE can never equal TRUE!

A QUICKIE SLIDE SHOW

The last program (see PROGRAM 3) is one that was written by a friend of mine who wishes to remain anonymous but goes by the name of Grog the Frog, it was written as a bet in two minutes flat! That probably explains the sloppy way it was put together, still it's quite functional. It is in fact a slide show and can be very handy, especially if saved as an accessory. I use it quite a lot when programming in STOS because I can never remember what I have called the picture files I may be currently using.

```
10 rem ***********************************************************************
20 rem *                                                                     *
30 rem *                             SLIDE SHOW                              *
40 rem *                          BY GROG THE FROG                           *
50 rem *                                                                     *
60 rem ***********************************************************************
70 reserve as screen 8
80 key off : hide : mode 1
90 gosub 220
100  :
110 repeat
120 SPEC$=DISK$+"*.PI1"
130 mode 0
140 gosub 470 : rem **********   SLIDE SHOW OF ALL PI1'S    **********
150 SPEC$=DISK$+"*.NEO"
160 gosub 470 : rem **********   SLIDE SHOW OF ALL NEO'S    **********
170 SPEC$=DISK$+"*.PI2"
180 mode 1
190 gosub 470 : rem **********   SLIDE SHOW OF ALL PI2'S    **********
200 until false
210  :
220 rem **********     GET CHIOCE OF DRIVE      **********
230 TEST=0
240 show
250 mode 1
260 windopen 3,14,0,52,5,4
270 curs off
280 window 3
290 print : print "        START THE SLIDE SHOW ON WHICH DRIVE?"
300 X1=33 : Y1=9 : X2=5 : Y2=5
310 set zone 1,X1*8,Y1*8 to (X2+X1)*8,(Y2+Y1)*8
320 windopen 1,X1,Y1,X2,Y2,4
330 print : print " A";
340 X1=42 : X2=5
350 set zone 2,X1*8,Y1*8 to (X2+X1)*8,(Y2+Y1)*8
360 windopen 2,X1,Y1,X2,Y2,4
370 curs off
380 print : print " B";
390 repeat
400 TEST=zone(0)
410 until TEST>0 and mouse key=1
420 if TEST=1 then DISK$="A:\" else DISK$="B:\"
430 cls
440 hide
450 return
460  :
470 rem **********        SLIDE SHOW BIT        **********
480 ART$=dir first$(SPEC$,-1)
490 while ART$<>""
500 gosub 550 : rem **********   FADE PICTURE IN AND OUT    **********
510 ART$=dir next$
520 wend
530 return
540  :
550 rem **********    FADE PICTURES IN AND OUT   **********
560 clear key
570 curs off
580 cls 8
590 load ART$,8
600 fade 5
610 wait 35
620 screen copy 8 to physic
630 fade 5 to 8
640 wait 250
650 if inkey$<>"" then wait key
660 return
```

HOW IT WORKS

LINES 70-90 reserve a temporary screen and erases any junk on the current physical screen.
LINES 110-200 make up the main loop, the file search specification is put into the the variable SPEC$ and then the program jumps to the loading routine. This is repeated separately for NEO, PI1 and PI2 pictures.
LINES 260-290 open a window and ask the user which drive they would like the program to search.
LINES 310-360 set up the two zones and windows which will contain the drive A or B selection.
LINES 390-410 wait for the left mouse button to be pressed in one of the zones.
LINES 480-510 get the names of the pictures to load using the DIR FIRST$ and the DIR NEXT$ command.
LINES 560-590 clears memory bank 8 and loads a picture into it.
LINE 600 Fades the physical screen colours to black.
LINES 620-630 copies the picture in bank 8 onto the physical screen and fades all the colours to those stored in bank 8.
LINE 650 - if a key is pressed this line pauses until another keypress is detected thus keeping the picture on the screen.

NEXT TIME

So that's all for this issue, and if all goes well next time I will be bringing you a full report on the STOS support given by Mandarin at the PC show, a few more listings than this month (well at least I gave your fingers a rest!), perhaps a STOS game, and if I can get hold of a copy I will do a quick comparison between STOS and it's new running mate AMOS (yes I know it's an AMIGA package but I promise to have a disinfectant bath after playing with the little beastie).

Oh before I give you my address I would just like to thank Laurence Myears and Neil Mathieson for being the first people to write to me. Please remember that I cannot guarantee the immediate return of your disks unless you include a SAE.

Write to Peter Hickman, at 36 CLEVERLY ESTATE, WORMHOLT ROAD, LONDON W12 OLX

STOS II ... The Accessories

Damon Howarth tries out the first extensions to STOS allowing you to add sprites and sound and to compile the programs

When STOS was launched many add ons were promised, and owing to the language's phenomenal success they are now ready. The three items which I have had the joy of combining into my STOS system are the Compiler, Sprites 600 and STOS Maestro. Each of these are compatible with the system and in the case of the Maestro and Compiler need certain installation programs to be run to ensure that everything goes smoothly.

ADDING SPRITES ...

Perhaps the least impressive package both in packaging and content is the Sprite 600. This single disk comes in a booklet type cover with a plastic coated instruction sheet. The disk is simply what it claims to be and gives the owner access to several well drawn and animated sprites covering subjects as varied as Porsches to Dragons and submarines to spaceships. They prove useful to people like me whose artistic talent makes creating convincing sprites almost impossible. Since they are created in STOS format they slot into the sprite banks with no problem and as the demo provided is written in STOS it may be listed to obtain other hints as to construction. What's more the sprites can even be edited in the editor provided with the language. On the whole a very handy package that can save creation time.

ADDING SOUND ...

Maestro is a sound sampler package and the smaller edition of Maestro Plus which contains the hardware needed to extract real time samples. Sadly I did not receive a cartridge with the review copy and so cannot comment on that side of the software. It was noticeable that no dealers or companies were willing to comment on the compatibility of other cartridges to Maestro. It was surprisingly difficult for me to make arrangements with Mandarin to buy the optional add on as well in fact the situation became so complex I gave up trying to buy it. These problems aside, the software is truly remarkable. It is run as a stand alone program but includes an extension to STOS Basic to enable the programmer to insert samples into their own creations with no real difficulty. The Maestro manual also includes full instructions on this and even explains the assembly language routines for those who wish to write machine code programs. Maestro also claims to be compatible with other languages that are capable of calling assembler routines from Basic, thus making Maestro of potential interest to users of Fast and GFA Basics.

In the STOS tradition of borrowing parts of good games, Maestro allows the importation of sampled files from other sources on disk. For example I transferred the whole of the Snowman sample from a demonstration disk and was readily able to tinker with it. One of the beauties of the software is this ability to take a piece of music or voice and twist it with reverb and echo to make sounds that were never dreamt of by the composers.

The editing of any sample is most user friendly. The system shows both where in memory a sample lies and how much memory is used by the sample. This can be altered by clicking left and right markers to frame any area on the representative bar and the sound waves then appear within this portion. A magnify command allows very detailed study of very short pieces of sample and if enough time, patience and listening is expended spectacular edits of sound may be created and saved. My Snowman example eventually took up approximately 260K, included several calls for help and a redefined panpipe taken from the sample disk supplied. Saving the samples to disk is just as well thought out and simple and works through an easy menu system. I also managed to add some sampled cracks and zaps as suggested to Zoltar but more of that with the compiler.

The Maestro disk has a most amusing demo of a drum kit wherein up to thirty two keys may be defined as samples of various pitch, tempo and style and played through a drum kit. The supplied STOS Basic written drum demo is, as always, fully listable and eminently tinkerable with. To do this of course STOS Basic must be present and have had the extension modifier added to it (available on the Maestro disk). Sadly the other demos needed the sampler cartridge attached and so I can offer no comment on them save saying that there is a phaser effect and a sort of light show effect available to immediately inputted sound. It is also possible to set direct sampling at various volume rates and speeds. If you were to buy this utility I would advise purchase of the Plus version but if you already own sampler hardware then the Maestro software will be compatible with samples you have made in that system.

COMPILE IT

Next on offer is the STOS Compiler. This piece of software contains an update for STOS users since it works on STOS 2.4 and includes the updating software. The new update makes floating point arithmetic at single precision and certain mathematical operations much faster. Especially helped are the trigonometric functions such as SIN and COS. At this point it is necessary to explain that I reviewed all these on a two drive 1040 and I understand from friends with half meg drive 520s that memory is tight and several demo features cannot be found without a one meg drive. The manuals for all these products do explain this and the compiler especially has programs on it to maximise half meg memory.

The compiler disk comes complete with a ram disk accessory and a formatter for disks. The compiler has to be installed as

an accessory and needs the whole folder of functions available in either the active drive or the RAM disk. The Ram disk accessory is one of the best of its kind and is most friendly to set up though it seems that this is not practical on 520s.

The compiler will turn any version 2. 4 or converted 2. 3 STOS Basic program into runnable machine code, even the accessories and games on the original set. Indeed it is now possible to run the sprite designer and music writer from desktop to produce STOS compatible sprites and sounds. This enables 520 owners to have more development space. The compiled versions are normally a great deal more compact than the run time versions and if compiled as GEM and saved as .PRG. are unavailable to prying eyes if you distribute them to friends or software companies.

The compiler will compile to Basic allowing the machine language to be run and the original program to be edited although compiling to GEM loses this option. The actual compilation may be done from any combination of memory and disk - from memory-to-memory up to disk-to-disk. Obviously the more memory options are used the quicker the compilation but compiling to disk is not at all memory intensive and although slower is certainly feasible. To activate the compiler it is only necessary to enter the accessory menu and press the appropriate function key. This sets up the relevant files and puts the user into the very helpful front end, then so long as no bugs lurk in the Basic the compilation is complete. Having said that the compiler is very fussy and, if nothing else, will insist on tidy and good programming practice. Even the demo games on the STOS disk written by the creator himself threw up compilation errors which is why the compile to Basic is used first. The system needs module type programming, defined arrays and careful data statements but the produced code is normally error free and a sense of achievement surrounds a successfully written and compiled .PRG. Once again there is nothing that can be criticised too much, every type of machine in the ST range is catered for and that in itself is an achievement. Personally I felt the system needed a minimum of two drives although a one meg memory with ram disk would be as efficient.

Programs that benefit most are those that rely on calculations. Not a lot can speed up interrupt driven sprites but try to compile and then play Bullet, it then lives up to its name.

All in all these three pieces of software are masters of their kind and certainly the compiler is an indispensable aid to any STOS user. Maestro is fun and certainly useful while the sprites are like having tins of soup in the cupboard for those days when making your own are impracticable.

SORCEROR LORD

PSS/Mirrorsoft £24.99

John Sweeney knows a thing or two about war games so he was delighted to be able to try a new one - but not for long!

Nice box, nice packaging - map, player's guide, reference card. Claims to be a Fantasy Wargame Simulation - "The game where sorcery is a reality". Load the game and a map appears. Lots of identical icons, representing the Shadowlord's forces, start moving round the screen to the accompaniment of a sound like a Banda machine in need of a service. As one moves off the edge of the screen the view jerks to a different section of the map. (The board covers six screen sections but doesn't scroll.) One of the enemy reaches a little fortress and there is a truncated shriek indicating a battle (sounds more like a stone in your brake linings!).

After a couple of minutes of this it switches to Combat Mode. Data briefly flashes up at the top and bottom of the screen - how strong a magical attack each side has succeeded in casting, numbers of troops, and number of deaths. (I hate games which don't let YOU control for how long data is displayed!) Next is the Alliance Phase. Some of my leaders mobilise and various of my castles get reinforcements.

Movement Phase! At last I get a chance to do something. Keyboard only! As I move the cursor onto my castles and troops I get their status - number of riders and warriors, leader's characteristics (Leadership and Sorcery), fatigue and remaining movement points. (The documentation is incomplete at this point as it fails to mention that the SELECT key is 8, DESELECT is 2, War Status is W, and View Next Unit in Stack is 5!)

So I move a few guys around, I can also look at an overall view of the world (shown in the hexes which make the board up - these are NOT shown on the actual playing board!), and pick up or drop troops in garrisons. X tells the computer I have finished this phase. After my Combat Phase (which looks just like the computer's) it's back to his movement phase again - more screen jerking, but thankfully much faster and quieter now that I've turned off the noises!

If you can recapture all your lost castles or his HQ before time runs out or he gets your HQ then you win. That's it. Not a lot for £25!

I managed to win the Beginner's Level after three or four goes, didn't try Advanced, and gave up on Expert - it is extremely difficult and doesn't appear to give you anything like enough information on what is happening. The average player is likely to be frustrated by the unfriendly controls, the lack of interaction and the difficulty of winning. The keen wargamer is likely to be put off by the lack of information.

This is basically a very ordinary wargame - if you were playing this as a board game then you would resolve combat by throwing dice and looking up the result on a Combat Resolution table (CRT) choosing the appropriate part of the table for the type of troop (there are five nations and two types - warrior and rider), the type of terrain and the relative size of the troops, modified by the dice throws, the leadership and fatigue factors and the sorcery level. The sorcery level is determined in some way from your leader's sorcery factor plus the distances to eight miniature Stone-Henges (Rune Rings), a dice throw(?) and how many Rune Rings you hold(?).

In this version the computer throws all the dice secretly, keeps all the CRTs and modifier tables secret, and doesn't even leave the results up long enough! With so many variables it is impossible to deduce what is going on, especially when so many other details are also undefined. What is the terrain type or effect on battle of being in a Rune Ring or a Castle? What happens if there are multiple leaders present? What happens to movement points and battle strength when you combine different nations under a single leader? And so on...

And where are all the Magic Spells advertised on the box? I don't think the fact that your leader's sorcery factor acts as a CRT modifier is sufficient to justify all the references to sorcery and magic in the description of the game! •

THE STOS ADD-ONS

SPRITES 600	**£14.95**	**STOS MAESTRO**	**£24.95**
STOS MAESTRO PLUS	**£69.95**	**STOS COMPILER**	**£19.95**

Published by Mandarin Software

MAKE YOUR ATARI HAPPY!
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Limited numbers of the following are still available - see earlier issues for full description of contents

ISSUE 20 - GRAPHICS SPECIAL includes Touch Tablet utilities. *DISK ALSO AVAILABLE WITH BONUS PICTURES*

ISSUE 21 - Includes a Guide To Error Codes. *DISK ALSO AVAILABLE*

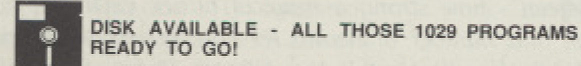
ISSUE 22 - Includes a type-in spreadsheet. *DISK AVAILABLE WITH BONUS*

ISSUE 23 - Includes utilities XREF and VERIFY. *BONUS DISK AVAILABLE*

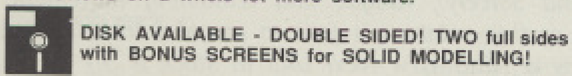
ISSUE 24 - *SOLD OUT*

The following issues are still available

ISSUE 25 - Another biggie! A must for 1029 printer owners with 3 great utilities including a SCREEN DUMP. A super Japanese chess game called SHOGI, a type in REVISION C BASIC, a full feature on disks and more. For ST, type in OTHELLO, reviews of LEADER BOARD and MEAN 18, Hints and Tips and several other reviews and articles.



ISSUE 26 - SOLID MODELLING is one of the best non-game programs we have published. Be creative! Other programs include SOURCE WRITER for machine code programmers, FLEXIBLE FINGERS to help you type, NUTS and more. Reviews of TRIVIAL PURSUIT, DVC/65, SPEEDSCRIPT and much, much more. ST users can learn all about HARD DISKS, FAST BASIC, TYPESETTER ELITE, DEGAS ELITE and read reviews on a whole lot more software.



ISSUE 27 - Some cracking listings for the 8-bit. In GREAT BRITAIN LTD. you can be the Chancellor and help run the country. COMPUTER GAMMON is a great Atari version of backgammon and there's ANTS IN YOUR PANTS, DISK COMMAND and others. There is a feature on word processing and stacks of reviews. The ST section includes an in-depth review of ART DIRECTOR and a neat little program to put scrolling stars on your screen! Lots of reviews including HABAVIEW, K-SPREAD 2, K-WORD and many more.

DISK AVAILABLE - some L-O-N-G LISTINGS!

ISSUE 28 - Extend the incredible original Munchy Madness with the MUNCHY MADNESS SCREEN DESIGNER, play GREEDY CATERPILLARS with a friend, teach your children with MOST HEART MATHS or make up some crosswords with XWORD. A long feature on flight simulation programs, hints on ZORK and loads of reviews. For ST users, the first in a series of USING GEM from C plus FLIGHT SIMULATOR II reviews, new books from COMPUTE! and a whole stack of reviews.

DISK AVAILABLE - Also contains the winning title screen from our competition.

ISSUE 29 - One that serious 8-bit users have been waiting for - a great full feature database - MJDBASE plus an amazing story maker, STORYBOOK, that allows you to create illustrated stories. Then there's a great game from ANTIC called CLIFFHANGER and an AUTORUN maker and more. Cheat on commercial games with ZAPPING THE RIGHT BYTE and read stacks of reviews. The ST section has a type-in program, SCREEN GRABBER, which allows you to 'snatch' pictures of commercial games to disk, plus the next part in our GEM FROM C series and reviews of Superbase Personal, K-COMM 2 plus lots of games including Barbarian.

DISK AVAILABLE. DOUBLE SIDED. With BONUS story for STORYBOOK and STORYBOOK reader.

ISSUE 30 - A great follow up to Solid Modelling allows you to animate 3-D objects. Try 3-D ANIMATOR. How about a puzzle with LETTER CASTLE or an arcade style shoot-up from ANTIC called DESERT CHASE? Articles inlcude an in-depth look at GUNSLINGER, *Genealogy With Your Atari* and First Steps on saving screens. Loads of reviews including AUTODUEL and P:R: CONNECTION. The ST section has the continuing GEM series, CYBERSTUDIO, ZOOMRACKS II and lots of games and serious reviews including GFA BASIC, K-Roget, Jupiter Probe and more.

DISK AVAILABLE. DOUBLE SIDED with BONUS MACHINE LANGUAGE ADVENTURE only on the disk!

ISSUE 31 - Our massive survey on all the WARGAMES available for the 8-bit Atari heads this issue which also includes a great type-in synthesiser listing called ORIGINAL SYNTH. Other listings include FONT FACTORY, a nice character editor and a challenging game called BOWL TRAP. A feature on SSI, more Tutorial Subroutines, a long feature on THE NEVERENDING STORY, reviews of ROADWAR 2000 and THE DUNGEON plus many more are also in this issue. The ST SECRETS, a new series on ST programming begins with a look at sound and the ST reviews section includes IMG SCAN, BASE TWO, TEMPUS and many more.

DISK AVAILABLE - All the extra files for ORIGINAL SYNTH set up ready to run plus all the other listings.

ISSUE 32 - A great card game for 8-bit users called, rather uninspiringly, WHIST plus a two player game of TENNIS and a GRAPH MAKER that works on the 1029 printer. A new series starts on EXPANDING YOUR ATARI and there is an excellent program/tutorial on BUBBLE SORTING. Reviews include THE PAWN, GUILD OF THIEVES, SPARTADOS/U.S. DOUBLER and many more. ST users can find out about programming graphics with ST SECRETS and can read all about the TURBO DIZER, PC DITTO plus reviews of Tanglewood, Defender of The Crown, Winter Olympiad, PROSPERO FORTRAN and more.


DISK AVAILABLE - DOUBLE SIDED with BONUS MACHINE CODE ARCADE GAME only on this disk.

ISSUE 33 - Many readers have said this is our best issue yet with an extensive feature on choosing a printer for your Atari, plus HEAVY METAL, a superb type-in machine language arcade game. Other type-in listings include another game, CRYSTAL CRISIS and two utilities, COLOUR TUNER and SOFTKEY, the latter being a super keyboard 'macro', utility. ST owners can find out more about PROGRAMMING GEM with another article in the series and there are loads of reviews including MASTERPLAN, GUNSHIP and SPECTRUM 512. There's much more in this issue besides, including some great music for the 8-bit.

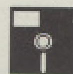

DISK AVAILABLE - including TWO BONUS GAMES that are not in the magazine.

ISSUE 34 - An ADVENTURE special to delight all fans of Atari Adventuring. Exclusive and extensive interview with LEVEL 9, two TYPE-IN 8 bit ADVENTURES, games reviews, bumper A-Z HINTS AND TIPS for all kinds of adventures, a survey of almost every known Atari adventure and much more. Other items include DAVE T'S DISCO, FLYING BY THE BOOK, TUTORIAL SUBROUTINES, the SHELL SORT and the regulars. ST File includes a round up of ST adventures, a review of DUNGEONMASTER, hints on adventures and stacks of general games reviews.

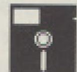

DISK AVAILABLE - includes TWO BONUS ADVENTURES only to be found on this disk.

ISSUE 35 - SOLD OUT. DISK WITH ALL PROGRAMS AND BONUS MACHINE CODE GAME STILL AVAILABLE

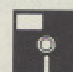
ISSUE 36 - Another cracking machine language game from Paul Lay called STAR RIDER plus HEADBANGER, also in machine code, MUSIC BOX and SYNTH II to type in. MAPPING YOUR ADVENTURE shows you how to succeed in adventures, 850 SPLIT reveals secrets about the 850 interface, DESIGNER KEYS allows you to customise the keyboard. Then there's BEGINNER'S BASIC plus a new series on TURBO BASIC, reviews of MERAK, Draconus, Joe Blade and more. For the ST we have B BOOT to allow you to boot from drive B, STOS reviewed, TRIP-A-TRON, SPELLBOOK, SUPERBASE PROFESSIONAL all reviewed and you can find how to never get lost again with AUTOROUTE. All this plus much, much more.


DISK AVAILABLE - includes BONUS MACHINE CODE UTILITY to add 128 colours to Atari Artist or Micro-painter pictures.

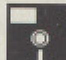
ISSUE 37 - Some excellent listings including SCROLLY TEXT EDITOR, a superb utility for creating scrolling messages on the XL/XE just like those on the ST, plus BLASTCOM, a fast and furious blast 'em up, and SUNPLOTTER which shows you the position of the sun and times anywhere in the world. Also FINDER for searching your programs, the first part of MACHINE CODE LIBRARY and the CASSETTE DATABASE. Loads of reviews, as usual, including SpartaDos X. ST File includes the first part in the MIDI series and coverage of PROTEXT and FLAIR PAINT plus reviews of HEADCOACH (where have you seen that reviewed elsewhere?), SPRITE MASTER and a whole host of games. Lot's more besides.


DISK AVAILABLE - includes BONUS program UNDER STARTERS ORDERS, a superb horse racing game for all the family

ISSUE 38 - A super educational program, MCQ-TEST, for revision, homework or fun. The MACHINE CODE library looks at saving and loading memory, a utility lists a REAL TIME CLOCK for your XL or XE and THE PODZ is a great scrolling game. There are several more listings. The TIPSTER begins and articles include THE GAMES THEY NEVER RELEASED and more on Turbo Basic. ST owners can enjoy type-in routines for graphics, reviews of MINIX, FUN SCHOOL 2, POLICE QUEST II plus loads of games. The MIDIots guide continues and John Sweeney looks at KINGS QUEST and LEISURE SUIT LARRY.


DISK AVAILABLE - includes GALACTIC CRESTA a BONUS MACHINE CODE GAME previously released commercially!

ISSUE 39 - The first type-in fishing game for the Atari, CATCH DAY, heads the way with MOUSE PARTY and a NUMERICAL CONVERSIONS UTILITY also to type in. Other features include PAGE MARSHAL, HAWKQUEST, the MACHINE CODE LIBRARY on Player Missile Graphics plus, of course, THE TIPSTER and reviews of 8-bit games including STAR WARS. The ST section includes reviews of THE JADE STONE and DOMES OF SHA, the Midiot's guide to the SEQUENCER, a new column on STOS PROGRAMMING plus many, many reviews including GOLDRUSH and GALDREGON'S DOMAIN.


DISK AVAILABLE - includes PRO GOLF as a BONUS. Superb 18 hole action with all the options plus a construction kit to build your own courses

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PAGE 6 *Adventures*

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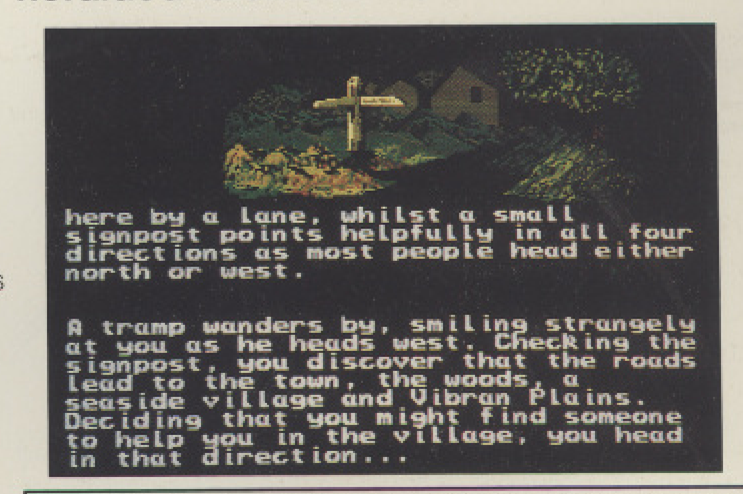
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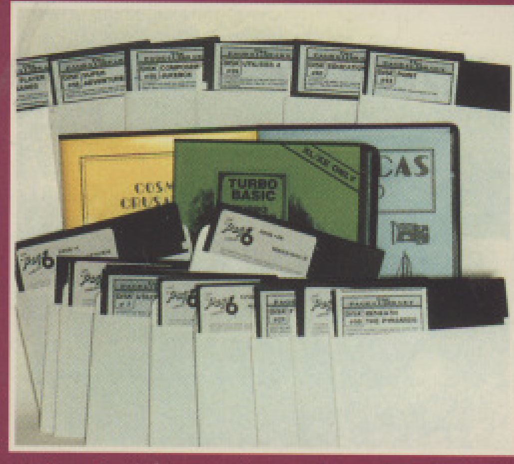
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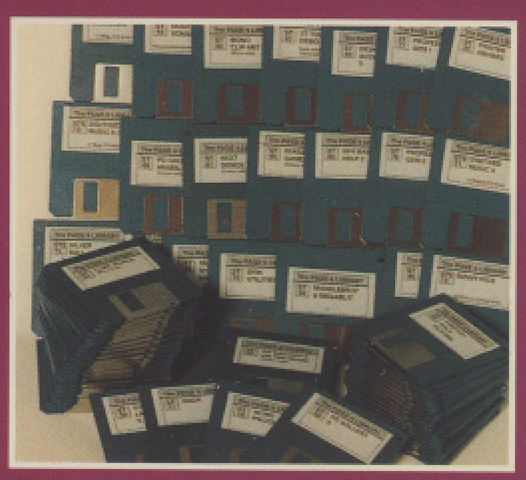
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